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Factors Comprising Adolescents' Readiness for Sexual Behaviors:

A Latent Profile Analysis

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Factors Comprising Adolescents' Readiness for Sexual Behaviors: A Latent Profile Analysis

by

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Dedication

Dedicated to my sister, Vero.

Thank you.

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Abstract

Factors Comprising Adolescents' Readiness for Sexual Behaviors: A Latent Profile Analysis

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The current study used multi-wave data from the National Longitudinal Study of Adolescent to Adult Health to examine the existence of typologies of readiness for sexual intercourse and contraception among a nationally representative sample of adolescents aged 15-18. Grounded in the theory of planned behavior, the current study used latent profile analyses to establish five profiles of sexual readiness based on adolescents' attitudes, subjective norms, and perceived behavioral control for sexual intercourse and contraception. Analyses were conducted cross-sectionally and longitudinally, and five classes were confirmed at each of two waves. The current study established and characterized four profiles of readiness for sexual behavior at both waves: "impulsive adolescents," "precarious adolescents," "well-controlled adolescents," and "conservatively-reared adolescents." Two separate fifth profiles also emerged: "hasty adolescents" at wave 1, and "unrestrained adolescents" at wave 2. Logistic regression of

longitudinal data indicated that compared to "impulsive adolescents" at wave 1, "precarious" and "conservatively-reared" adolescents were significantly less likely to engage in sexual intercourse at wave 2, and "well-controlled" adolescents were significantly less likely to engage in casual sex. Wave 1 cross-sectional data indicated that "precarious" adolescents were less likely to have used contraception either at their first time or most recent time of sex, and all other profiles were more likely to have employed contraception than "impulsive" adolescents. Wave 2 cross-sectional analyses indicated that two profiles ("precarious" and "conservatively-reared") were less likely to engage in sexual intercourse, and two profiles ("well-controlled" and "unrestrained") were more likely to engage in sexual intercourse than "impulsive" adolescents.

Table of Contents

Introduction

Whether or not to engage in sexual behaviors is a critical decision for adolescents. This decision may have lifelong consequences as adolescents become reproductively capable and sexually curious: 55% of females and 58% of males ages 15-19 experience sexual contact (Copen, Chandra, & Martinez, 2012). Adolescent sex-research in the last decade has seen a shift in ideology and increased efforts to promote adolescence as the time period for development of positive and healthy sexual behaviors (Tolman & McClelland, 2011). The current study views sexual activity as part of normative growth during adolescence and establishes a taxonomy of profiles for sexual behaviors based on adolescents' readiness to engage in sexual intercourse and to use contraception. Adolescents, just like adults, may practice abstinence, engage in sexual relationships, or seek out casual sexual encounters (hooking up) – all the while using contraception with frequencies ranging from always to never. The current study employed longitudinal data from the Add Health section of the National Longitudinal Study of Adolescent to Adult Health to examine the hypothesized taxonomy of profiles of readiness for sexual behavior. The resulting taxonomy was then examined for associations with engagement in sexual intercourse, engagement in casual sex, and consistent birth control use. By using latent profile analyses at multiple waves to examine the a priori profiles, the current study may provide insights into the progression from perceived readiness to sexual behaviors as adolescents mature.

The current study views adolescent sexual behavior as something to be understood, not a problem to be solved. This represents a departure from previous research, much of which has presented sexual activity as a problem, grouping it together

with high-risk behaviors such as substance use and delinquency (Arnett, 1992), and failing to differentiate between healthy sexual behaviors, such as proper condom use, and unhealthy sexual behaviors, such as high levels of promiscuity. Recent research, however, is moving towards a more sex-positive perspective, one which emphasizes the normalcy of sexual behaviors and seeks to relax the "taboo" mindset so often associated with sexuality (Diamond, 2006; Harden, 2014). Presupposing that sexual behaviors are not inherently high-risk even in adolescence, the proposed taxonomy illustrates the variability of sexual behaviors, and highlights the fact that these may be associated with either positive or negative consequences. The current study aims to identify profiles of readiness for sexual activity and contraceptive use in order to show how adolescents grapple with the decision of whether or not to become sexually active. Additionally, latent profile analysis at each wave was used to determine whether similar profiles would emerge at both of the time points examined.

Sexual behaviors may be viewed as developmental milestones important in the transition from childhood to adolescence, and again from adolescence to adulthood (Ciairano, Bonino, Kliewer, Miceli, & Jackson, 2006). Puberty and adolescence are especially transformative times, as biological changes direct new and increased physical self-awareness, as well as increased romantic interest in peers and dating (Foster, Hagan, & Brooks-Gunn, 2004). Through these changes, healthy sexual activity becomes a normative part of adulthood, as well as a vital part of healthy intimate relationships. Most previous research has focused on correlates of sexual behavior, and the relationships between individual characteristics (i.e. race/ethnicity) and sexual behaviors (Bersamin, Walker, Fisher, & Grube, 2006; Ishida, Stupp, & McDonald, 2011; Leichliter, Chandra,

Liddon, Fenton, & Aral, 2007); few studies have examined factors that are considered during the process of becoming a self-motivated sexual actor. The extant research largely fails to consider that, for the majority of adolescents (particularly those without physical or mental disabilities), one of the primary goals of adolescence is to develop sexual agency (Miller & Simon, 1980). The current study addressed this gap by creating profiles for sexual behavior based on adolescents' perceived readiness for sexual intercourse and their contraceptive use at wave 1 (1994/1995) and wave 2 (1996), and examined the association of each profile with sexual behaviors in cross-sectional and longitudinal models.

The current study employed a modified version of the theory of planned behavior (Ajzen, 1991) to propose a series of five constructs that capture adolescents' readiness for sexual intercourse and for contraceptive use. It further explored profiles of sexual behaviors among adolescents based on constructs they may consider while determining their readiness for sexual activities: (1) their attitudes toward sexual intercourse, (2) their perceived subjective norm (parental approval) for sexual intercourse, (3) their attitudes toward contraception, (4) their perceived subjective norm for contraception, and (5) their perceived behavioral control over contraception. Adolescents who do not feel ready for sexual activity may have fewer positive attitudes for either or both of the behaviors examined (intercourse and contraceptive use), whereas adolescents who believe they have reached sexual maturity may have more positive attitudes toward one or both behaviors. Since adolescence is a time of growth, all five constructs for sexual intercourse and for contraceptive use were examined at both waves. It was hypothesized that latent profile analysis using the five indicators of readiness for sexual intercourse and

contraceptive use would create five profiles of adolescents' inclinations toward sexual behavior: 1) precarious adolescents, 2) well-controlled adolescents 3) conservatively-reared adolescents, 4) impulsive adolescents, and 5) hasty or unrestrained adolescents. The current study also examined the association of each profile with outcome behaviors, including engagement in sexual intercourse and contraceptive use at waves 1 and 2.

The Variability of Sexual Activity

While many American parents maintain conservative views of emerging sexuality and may object to their adolescent engaging in sexual activity (Schalet, 2010), the current research examined various profiles of sexual behavior from the point of view that sexual behaviors emerge in adolescence, and that there is variability in the degree to which adolescents are sexually active. Throughout this period in their lives, adolescents will determine whether and when to engage in sexual intercourse, and will begin managing the consequences of sex through the use of condoms and other contraceptives. The expectation that adolescents will be able to foresee and manage consequences of sexual activity is often critiqued by proponents of cognitive approaches. Some scholars, such as Steinberg (2005), reference the decreased neurological capacity of the brain's executive functioning during adolescence to argue that adolescents cannot formulate a plan for their sexual activity ahead of time, or adhere to such a plan under arousal circumstances; in other words, adolescents will be swept away by their hormonal urges regardless of their reasoning abilities. However, research in behavioral neuroscience finds evidence contrary to this popular belief: adolescents at age 16 do not show significantly lower levels of reasoning; nor are they more likely than adults to underestimate the potential consequences, costs and benefits of sexual behaviors (Harden & Mendle, 2011). This

suggests that adolescents do possess the capacity and ability to think far enough in advance about the consequences of becoming sexually active before engaging in any sexual activity. The factors measured in this study, which are taken into consideration when adolescents are determining their sexual readiness, may predict whether an adolescent may actually engage in sexual intercourse, and whether he or she will use contraception, when facing an opportunity for sex.

Research reports different rates of sexual experience in adolescents aged 15-19, from 41% for females and 42% for males (Mueller, Gavin, & Kulkarni, 2008) to the previously mentioned 55% for females and 58% for males(Copen, et al., 2012). Although even the most conservative figures indicate that nearly half of adolescents engage in sexual behaviors during these years, it is true that a substantial portion of them do not. Assuming that all adolescents are experiencing similar hormonal drives toward arousal and are becoming curious about sexual activities, the current research aimed to clarify whether adolescents who differ in beliefs also differ in behaviors. Do adolescents who have positive notions of sexual intercourse actually report engaging in intercourse? Conversely, do less positive notions of sexual intercourse lead to abstinence? Adolescents who fit into a profile characterized by abstinence-oriented beliefs at wave 1 may be less likely to engage in sexual intercourse later on than adolescents who fit into a profile characterized by greater readiness for sexual activity.

Sexual Activity as a Transitional Experience

Researchers have recently presented the idea that sexual activity should be viewed as a vital step in transitioning through adolescence into adulthood (Diamond, 2006). In fact, more recent research has emphasized the normative aspect of sexual development,

explaining that puberty takes place during adolescence and, as a result, sexual maturation is also rooted in adolescence. More research has also begun considering the positive aspects of sexual development and the variations among relationships described by adolescents themselves, such as "messing" (sex-only relationships), more serious boyfriend-girlfriend relationships, and marriage-like relationships (Bauman & Berman, 2005).

While this more recent research is encouraging a shift towards positive sexuality, Tolman and McClelland (2011) note that there continues to be a lack of integration between positive aspects of sexuality (such as high self-efficacy against sexual intercourse, which may lead to delayed sexual debut) and risk management (such as positive attitudes about contraception, which may lead to consistent use). The current research may provide an answer to their call for an "explicit integration of these two dimensions [positive sexuality and risk management]…and how they develop in tandem" in adolescents (Tolman & McClelland, 2011, p. 251). The current study aimed to achieve this integration by establishing a taxonomy of profiles of readiness for sexual behaviors that allows for a spectrum of health and risk.

The two waves of longitudinal data examined by the current study provide information on the factors that impact an adolescent's readiness for sexual behaviors . The current study examined the proposed profiles at both waves, while also measuring sexual behaviors (engagement in sexual intercourse, casual sex, and contraceptive use) at both waves, thereby including cross-sectional and longitudinal models.

The current study also conducted latent profile analysis at both waves to examine whether similar or different profiles emerged at both waves. Latent profile analysis at

wave 1 was used to examine the initial hypothesis that subpopulations of adolescents would emerge based on their differing attitudes, beliefs, and perceived degree of behavioral control. Latent profile analysis was also conducted at wave 2 to expand on findings from the taxonomy at wave 1. Assessing whether emergent profiles at wave 2 were characterized similarly or differently from those appearing at wave 1 was done to determine if the hypothesized taxonomy would indeed hold at various time points. Because the taxonomy of profiles for sexual readiness was hypothesized to exist across the adolescent period and further into adulthood (as a taxonomy of sexual behaviors rather than readiness), it was important to examine whether latent profile analysis did indeed detect various subpopulations within the adolescent sample at both waves.

Learning to Delay Readiness for Sexual Behaviors and Contraception

Although physiological forces may drive sexual behaviors, these behaviors are not a foregone conclusion; that is, adolescents are likely to go through an active decision-making process, during which they consider their beliefs about becoming sexually active, pressures to have (or not have) sex, and the potential consequences of becoming sexually active. The Theory of Planned Behavior, or TPB (Ajzen, 1991), holds that people's behavior is preceded by behavioral intention (BI), and that this intention may be measured as a sum of one's attitudes toward the behavior (A), the subjective norms regarding the behavior (SN), and one's perceived behavioral control (C) for the behavior. This theory measures how various components interact in a person's decision-making process. The current study did not use individual aspects of TPB to form a measure of behavioral intention, but used the individual constructs of attitudes (toward sexual intercourse and birth control separately), the perceived subjective norm (for sexual

intercourse and birth control separately), and perceived behavioral control (for birth control only) as indicators in latent profile analyses of adolescents' readiness for sexual behaviors in order to examine the a priori profiles of readiness for sexual behavior. The current study was not able to include a measure of perceived behavioral control for sexual intercourse because available items were not thought to measure the construct adequately. The current study did not measure behavioral intention (BI) the same way the original theoretical models did, but instead used latent profile analysis of each of the five indicators for a more nuanced assessment of how the five constructs might reflect variations among adolescents in terms of their readiness for sexual behaviors.

The current study examined five total constructs for attitude, subjective norm, and perceived behavioral control using latent profile analysis to identify profiles of readiness for sexual behavior. Previous research employing the TPB framework has validated Ajzen's models by assessing a multitude of different behaviors, including voting, breast-feeding, weight loss, and drinking (Ajzen, 1991). The TPB framework has also proven useful in examining specific behaviors related to sexual intercourse. However, extant research has focused on condom use and HIV-prevention behaviors within specific populations, such as adolescent mothers and HIV-positive patients (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Kamb, Dillon, Fishbein, & Willis, 1996; Villarruel, et al., 2004). Such research may not be generalizable to a broader population of adolescents.

As TPB applies to adolescent sexual behaviors, it can be proposed that adolescents will evaluate their attitudes toward sexual activity, their perceptions about whether others approve of such behaviors (subjective norm), and their perceived ability to control such behaviors prior to engaging in sex. Given the available data, items that

best captured an adolescent's attitudes were those that assessed personal evaluation and peer group beliefs. As presented in the original theoretical models, an adolescent's personal evaluation is one way of assessing and operationalizing attitudes (Rimer & Glanz, 2005). Peer groups may also influence an adolescent's attitudes toward sexual behaviors (Ali & Dwyer, 2011). The constructs for attitudes included items that asked about adolescents' own evaluation of sexual intercourse and contraception as well as their peers' opinions.

An adolescent's family may influence perceived subjective norms – that is, what an adolescent believes is normal and expected behavior. Several studies indicate the importance of family communication on adolescents' attitudes and their perceived subjective norm for engaging in sexual behaviors (Miller, Kotchick, Shannon, Forehand, & Ham, 1998; Somers & Ali, 2011). Parent-child relationships may also influence an adolescent's sexual behaviors. Jaccard and Dittus (2000) found that adolescents who had a satisfying relationship with their mother and perceived disapproval of sexual activity were less likely to initiate sexual activity and more likely to employ contraceptives. The constructs for subjective norm asked about the perceived degree of parental approval for sexual behaviors.

Following the TPB model, this study derived attitudes toward sexual behaviors from an individual's beliefs and opinions about the behavior (including peer opinions). The subjective norm was derived from the individual's perception of what is normative and expected of them by their parents, and control was derived from the environmental barriers to and promoters of contraceptive use perceived by adolescents.

Readiness for Sexual Intercourse. Figure 1 illustrates the analytical model, including

the formation of profiles for sexual intercourse from five indicators, the first two of which relate to specifically to sexual intercourse: attitudes toward sexual intercourse and the subjective norm for sexual intercourse.

Ajzen (1991) defines attitudes as the subjective probability that a particular behavior may have positive consequences. The larger and widely used sexual attitudes scale (Hendrick & Hendrick, 1987) measures four aspects of sexual attitudes: permissiveness, sexual practices, communion, and instrumentality. Although the Add Health data waves used in the current study did not contain the entire sexual attitudes scale, the current items tapped into sexual practices and instrumentality, two of the four aspects found in previous research (Hendrick & Hendrick, 1987). In general, research has found a strong relationship between adolescent sexual intercourse and attitudes about sex. Attitudes about sex have been found to influence decisions about engaging in sexual intercourse, as well as other sexual behaviors (e.g., oral sex) (Halpern-Felsher, Cornell, Kropp, & Tschann, 2005).

Ajzen (1991) defines subjective norms as the subjective probability that important persons in one's life will approve of one's behavior. In the current study, items grouped to measure subjective norms for sexual intercourse examined the perceived opinions of the participant's mother and father. Previous research has found that parenting practices – such as communication about sex, support, parenting behaviors enacted for increased behavioral control and monitoring of adolescents, parenting behaviors encouraging autonomy and self-discovery, and general attitude toward sex – all influence components of adolescent seuxality, including age of first sex, use of birth control, and number of sexual partners (Jaccard & Dittus, 2000; Rodgers, 1999; Somers & Ali, 2011). Extant

research has also found that a key indicator for both engagement in sexual intercourse and consistent use of birth control is perceived maternal approval (Jaccard & Dittus, 2000). For this reason, subjective norms may be a particularly good indicator of adolescent readiness for sexual intercourse and contraception use.

Readiness for Contraceptive Use. The final three indicators shown in Figure 1 examine attitudes toward contraceptive use, the subjective norm for contraceptive use, and perceived behavior control for contraceptive use. It is important to note that contraception (e.g., birth control pill) is often differentiated from barrier methods (e.g., condoms) that also provide protection against sexually transmitted infections. However, the current study used these terms interchangeably, because the primary method of contraception used in adolescence is often condoms, which provide protection against both pregnancy and STI infections.

Attitudes about contraceptives may include fears about the health consequences of using contraception (i.e., physical side effects) and concerns about the added expense of purchasing contraception. Previous research using the Add Health data set has found that various attitudes toward contraception are associated with attitudes toward pregnancy; Bruckner, Martin and Bearman (2004) found that adolescents' beliefs about contraceptive use predicted various attitudes toward pregnancy, including anti-pregnancy attitudes, pro-pregnancy attitudes, and ambivalent attitudes.

Subjective norms for birth control were measured through perceived parental attitudes for mothers and fathers individually; scores for parents were then averaged to represent parental approval. Adolescents who perceive a higher degree of parental approval may be more likely to hold a positive view of contraception and use it

appropriately. The current study assessed parental subjective norms in an effort to provide the field of adolescent sex research more information about parents' role in affecting adolescent intention to engage in a range of sexual behaviors.

Behavioral control was measured through the perceived self-efficacy of adolescents to adequately use contraception in the face of physical arousal and to abstain from sexual activity when no contraception is available. Previous research has found mixed results for the link between perceived self-efficacy and actual behavior, with one prevailing caveat that, in the case of condom use, the opportunity to enact a behavior is required for the development of self-efficacy (Basen-Engquist & Parcel, 1992). In a study of sexually active adolescents, Rosenthal, Moore, and Flynn (1991) found that having the confidence to say no was a strong predictor for sexual risk-taking. This finding helps to conceptualize self-efficacy as the ability to stop oneself and use condoms before proceeding with sex. However, the methodology used by the current study may show that positive perceived self-efficacy may be irrelevant if one holds generally negative attitudes toward contraception, which would imply little or no desire to use contraception at all. Conducting latent profile analysis of longitudinal data allowed the current study to examine how self-efficacy interacts with other measures of willingness to use contraception and how these relate to reported use of contraception.

Demographic Factors of Influence

Beyond the primary constructs of the current study (attitudes, subjective norm, and perceived behavioral control), other factors have also been found to influence adolescents' sexual behaviors. The current study includes several demographic variables as control variables on the relationships of interest between the taxonomy of profiles and

sexual intercourse, casual sex, and contraceptive use. Age and gender were included, given that older adolescents are more likely to engage in sexual intercourse (Upchurch, Levy-Storms, Sucoff, & Aneshensel, 1998) and are more likely to use contraception consistently than younger adolescents. Research also finds that male adolescents are more likely than females to report engaging in sexual intercourse and to use contraception (specified as condoms in the current study) consistently (Martinez, Copen, & Abma, 2011; Upchurch, et al., 1998). Race and ethnicity categories were also included in analyses. Previous research has found that compared to white adolescents, African American adolescents are more likely to engage in sexual intercourse, have casual sex, and use contraception consistently (Blum et al., 2000; Champion & Roye, 2014). Hispanic adolescents have also been found to be more sexually active than their white and Asian peers (Blum, 2000; CDC, 2013; Santelli, Lowry, Brener, & Robin, 2000).

Socioeconomic status was also included, since previous research has suggested that gender and race/ethnicity differences are often confounded by social and economic contexts (Santelli, Lowry, Brener, & Robin, 2000). Socioeconomic status was captured by measures of parent education, parent occupational status, income, and family structure. Specifically, higher education, occupational prestige, and greater income would indicate high SES. Previous research has found that adolescents whose measures indicated a lower socioeconomic status were more likely to engage in sexual intercourse, have casual sex, and use contraceptives less consistently (Blum et al., 2000; Upchurch, Levy-Storms, Sucoff & Aneshensel, 1998).

Dating and Sexual History

Additionally, an adolescent's sexually active status at wave 1 was also used as a control variable in longitudinal (wave 1 and wave 2 data) and cross-sectional (wave 2 data only) analyses examining engagement in sexual intercourse. Sexually active status was used as a control variable in order to minimize the effect of previous sexual activity (i.e., having already had sexual intercourse) on each profile's likelihood of engaging in sexual intercourse. The other two outcome variables, engaging in casual sex and consistent contraceptive use, were examined using the subsample of participants who were sexually active. Only adolescents who reported having engaged in sexual intercourse were included in the analyses that examined casual sex and contraceptive use outcomes, because items measuring these behaviors were restricted to sexually-active adolescents in the original dataset. An adolescent's relationship status (i.e., a romantic relationship in the previous 18 months) was examined as an exploratory variable. Romantic relationship status was examined for its association with other study variables. Although no specific hypothesis was made for associations between being in a romantic relationship and being in a particular sexual readiness profile, romantic relationship status was also examined by profile.

Current Study

The first aim of this study was to create a taxonomy for profiles of sexual behaviors based on adolescent readiness for sexual intercourse and for contraceptive use. The current study used a representative sample of adolescents aged 15-18 that participated in waves 1 and 2 of the Add Health study to examine the proposed taxonomy. The five a priori profiles included: 1) precarious adolescents, 2) well-controlled adolescents 3) conservatively-reared adolescents, 4) impulsive adolescents, and 5) hasty or unrestrained adolescents.

The second aim of the study was to examine how the identified profiles are associated with various sexual behaviors. As the different profiles reflect different projected decisions when an adolescent is faced with an opportunity for sexual activity, profile membership should be associated with a variety of behaviors, including sexual intercourse, "hooking up," and contraceptive use. The profile "precarious adolescents" was hypothesized to be associated with a lower likelihood for sexual activity. The profile "well-controlled adolescents" was hypothesized to be associated with a lower likelihood of engaging in sexual intercourse and a greater likelihood for contraceptive use than other profiles. The profile "conservatively-reared adolescents" was hypothesized to be associated with a low likelihood of engaging in hooking-up behavior, and little or no contraceptive use. The remaining profiles ("impulsive adolescents," and "unrestrained or hasty adolescents") were hypothesized to include adolescents who were sexually active and exhibited various degrees of engaging in casual sex and contraceptive use.

Profile "Precarious Adolescents": Adolescents in this profile may be described as "precarious" because of their uncertainty about engaging in sexual behaviors. They may

exhibit a low to moderate readiness for sexual behavior. Adolescents in this profile may also have a low level of positive attitudes toward contraceptive use. This profile was hypothesized to be associated with a lower likelihood of engaging in sexual intercourse, and a lack of hooking-up (casual sex) behaviors. These adolescents would also be less likely to use contraceptives as a result of their decreased need for protection.

Profile "Well-controlled Adolescents": Adolescents characterized as "well-controlled" may have different degrees of readiness for sexual intercourse, but are distinguished by their ability to use birth control appropriately. These adolescents may report having low, moderate, or high levels of readiness for sexual intercourse, but indicate greater readiness for contraceptive use. Adolescents in this profile may also be less likely to engage in hooking-up behaviors. It was hypothesized that adolescents in this profile may be sexually active with committed partners while efficaciously employing contraception.

Profile "Conservatively-reared Adolescents": Adolescents who have parents with a conservative perspective on sexual activity are likely to receive messages at home that promote abstaining from both sex and contraceptives. These adolescents may not entirely agree with their parents' beliefs and thus may report more positive attitudes toward sexual intercourse and contraception. As a result of the discrepancy between their own attitudes and their perceived parental approval for sexual intercourse, it was hypothesized that "conservatively-reared adolescents" would be less likely to engage in sexual intercourse and hooking-up behaviors than those in other profiles. Adolescents in this profile may exhibit some hooking-up behaviors and inconsistent contraceptive practices.

Profile "Impulsive Adolescents": A profile of "impulsive adolescents" may characterize adolescents who are engaging in sexual intercourse, doing so with multiple

partners, and using birth control inconsistently. This profile would include adolescents with high levels of readiness for sexual intercourse and with low efficacy for contraceptive use, who may be described as "impulsive" when it comes to their sexual behaviors. While adolescents in this profile may engage in behaviors typically labeled "risky" (e.g., not using contraceptives), the current study has steered away from this term in order to emphasize the complexity (rather than the unhealthiness) of such decisions and behaviors. Adolescents in this profile are hypothesized to be more likely to engage in hooking-up behaviors, and less likely to use contraception than adolescents in the other hypothesized profiles.

Profile "Hasty or Unrestrained Adolescents": A fifth profile may emerge for adolescents who are engaging in sexual intercourse even though they do not feel ready for sexual activities. Adolescents in this profile, who may not feel ready for sex, may report more negative attitudes toward sexual intercourse and/or birth control. However, these adolescents may still be engaging in sex as a result of other factors, such as peer pressure or perceived parental approval. Overall, this profile may be composed of adolescents who would prefer not to engage in sexual intercourse, but hastily do so when given the opportunity. Likewise, these adolescents may endorse the use of birth control (i.e. hold positive attitudes and report a subjective norm for using birth control), but do not always follow through on plans to use contraception. These adolescents may either rush into sexual activity in a hasty manner, or be unrestrained when it comes to engaging in unprotected sex.

Methods

Sample

The sample for the current study was taken from two waves of the Add Health data set, which was comprised of data from a nationally representative survey first taken by students in grades 7-12 in 1994-1995. High schools were first identified from a database collected by Quality Education Data Inc.; these were representative of U.S. schools according to country, urbanicity, size, type, and ethnicity. Feeder schools were identified according to the participating high schools; a feeder school needed to include 7th grade and send a minimum of five graduates to the linked high school. The data set includes schools as the clustering variable, region as a stratification variable, and the sample weight for the grand sample as well as for various populations that were oversampled. The current study maintained the use of grand sample weights in order to minimize the bias potentially represented in the original, raw data due to oversampling of underrepresented populations. The nationally representative sample included subsamples of various ethnicities, including: blacks from educated families, wherein at least one parent has a college degree; Mexican-American families; and Chinese families. The current study also included several covariates, such as age, race/ethnicity, gender, parent education, parent occupational prestige, family income, family structure, and sexually-active status.

The analytic sample included adolescents aged 14-17 (M = 15.89, SD = 0.02) in wave 1 (n=8,152), and adolescents aged 15-20 (M = 16.80, SD = 0.03) in wave 2 (n=8,138). Table 1 provides a summary of the descriptive statistics for the sample at each wave. Specific inclusion criteria were used in creating the sample for the current study,

due to the restrictions for various sections of the wave 1 Add Health survey. The three inclusion criteria were as follows:

1. Participants must have responded “no” to the item, “Have you ever been married?” This item determined the marital status for participants at wave 1.

2. Participants aged 11-14 must have responded “yes” to the item, “Have you ever had sexual intercourse?” This criterion was used by the original researchers to prevent students under 15 years of age from responding to sensitive sections in the Add Health survey, unless they had indicated prior sexual experience.

3. Participants aged 15-18 did not have to be sexually active to be included. All participants aged 18 or over were excluded.

Procedure

The current study used data from wave one (1994-1995) and wave two (1996) of the National Longitudinal Study of Adolescent to Adult Health. Wave 1 data were collected in two stages: first, using in-school questionnaires, and second, using in-home interviews. Data for wave 2 were collected using only in-home interviews.

In-home interviews lasted between one and two hours, according to participant age and experience. During the interview, the questionnaire was completed using laptop computers, and less sensitive questions were read aloud by the interviewer, while sensitive topics were administered through pre-recorded audio messages using AUDIO-CASI. The interviewers were primarily responsible for entering respondents’ answers; however, respondents entered their own answers for sensitive topics in order to protect privacy. Interview procedures also limited sensitive sections of the Add Health survey – such as motivations for risky behaviors and motivations for birth control – to participants

age 15 or older, or to younger adolescents who indicated having had sexual intercourse.

Measures

The current study employed specific topics from the survey, including decision-making processes, formation of romantic relationships, sexual partnerships, risk behaviors, parental attitudes, and health status. From these topics, specific measures were adapted for use in the proposed models. Five constructs assessed adolescents' attitudes and perceived subjective norm for both sexual intercourse and contraception, and perceived behavioral control for contraception. Figure 1 illustrates the complete analytical model.

The first portion of the current model examined readiness for sexual intercourse at wave 1 and included two constructs, which paralleled the first two constructs of the TPB model, attitude and subjective norm: attitude toward sexual intercourse (α=0.71), and subjective norm for sexual intercourse (α=0.90). The second portion paralleled the entire TPB model to examine readiness for use of contraception at wave 1 and included three factors: attitude toward birth control (α= 0.82), subjective norm for birth control (α= 0.90), and control for contraceptive use (α= 0.63) (see Table 2).

Positive (pro-sex) attitude toward sexual intercourse. Three items formed the measure of adolescent attitudes toward sexual intercourse (α= 0.71). Items included, "If you had sexual intercourse, your friends would respect you more," "If you had sexual intercourse, it would make you more attractive to women/men," and "If you had sexual intercourse, you would feel less lonely." Each item was answered using a response scale ranging from "strongly agree" (one) to "strongly disagree" (five) with a neutral option "neither agree nor disagree" (three). Each item was then reverse coded so that higher

scores indicated stronger agreement with positive attitudes toward intercourse.

Positive (pro-sex) subjective norm for sexual intercourse. Four items were averaged to assess the construct of subjective norm for sexual intercourse ($\alpha = 0.90$). Items referenced both parents' opinions; the first two items asked about mothers' feelings, and the second two items asked about fathers' feelings. Each item was answered on a scale ranging from "strongly disapprove" (one), to "neither disapprove nor approve" (three), to "strongly approve" (five). Items referred to the subject's mother or father and included, "How would she/he feel about your having sex at this time in your life," "How would she/he feel about your having sexual intercourse with someone who was special to you and whom you knew well – like a steady (girlfriend/boyfriend)?" Items were averaged together to measure parental subjective norm for sexual intercourse. Items were averaged because only two items were available per parent. Higher scores indicated that the parental subjective norm for sexual intercourse was more positive, which was used as a proxy for a greater degree of parental approval.

Positive (pro-birth control) attitude toward birth control. Seven items formed the measure of adolescent attitudes toward birth control ($\alpha = 0.82$). Participants answered the following items on a 5-point Likert scale, with responses ranging from "strongly agree" (one) to "strongly disagree" (five): "In general, birth control is too much of a hassle to use," "In general, birth control is too expensive to buy," "It takes too much planning ahead of time to have birth control when you're going to have sex," "It {is/would be} too hard to get a {girl/boy} to use birth control with you," "For you, using birth control {interferes/would interfere} with sexual enjoyment," "Using birth control is morally wrong," and "If you used birth control, your friends might think that you were looking

for sex." Higher scores indicated more positive attitudes toward birth control.

Positive (pro-birth control) subjective norm for birth control. Two items were averaged to measure the subjective norm for birth control by assessing the adolescent's perception of parental attitudes (α= 0.90). Participants answered, "How would she/he feel about your using birth control at this time in your life" for both mother and father on a scale ranging from "strongly disapprove" (one), to "neither disapprove nor approve" (three), to "strongly approve" (five). Items were averaged together to measure parental subjective norm for birth control. Items were averaged because only one item that measured subjective norm for contraception was available per parent. Higher scores indicated a more positive subjective norm for birth control, which was used as a proxy for a greater degree of parental approval of contraceptive use.

Positive perceived behavioral control of birth control. Three items were averaged to assess perceived behavioral control of birth control use. (α= 0.63). Participants answered items on a five-point scale ranging from "very sure" (one) to "very unsure" (five), with an alternate choice of "I never want to use birth control" (six). For standardization, the sixth option was coded as missing and excluded from initial analysis. Items included, "If you wanted to use birth control, how sure are you that you could stop yourself and use birth control once you were highly aroused or turned on," "How sure are you that you could plan ahead to have some form of birth control available," and "How sure are you that you could resist sexual intercourse if your partner did not want to use some form of birth control?" Each item was then reverse coded so that higher scores indicated positive behavioral control – that is, a higher perceived self-efficacy to employ birth control when necessary.

Latent profile analysis was used to determine whether the five constructs measuring readiness for sexual intercourse and for contraceptive use distinguished between multiple profiles of adolescents within the sample. Logistic regression was then used to examine whether the profiles found at waves 1 and 2 were associated with behaviors, including: engagement in sexual intercourse, existence of hooking-up behaviors, and consistent contraceptive use. The analytical model was examined in three ways: first, cross-sectionally using only wave 1 data; secondly, longitudinally using wave 1 profiles and wave 2 outcomes; and thirdly, cross-sectionally using wave 2 data only.

Engagement in sexual intercourse. Sexual intercourse was assessed with one dichotomous item, "Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female's vagina" at wave 1 (M = 0.44, SD =0.01) and wave 2 (M = 0.54, SD = 0.02). The respondent's answer to this question determined which of the remaining sections of the survey were applicable. Respondents who answered "yes" (one) were identified as having had sexual intercourse, and were further labeled as sexually active and included in analyses for engaging in hooking-up behaviors and contraceptive use.

Engagement in hooking-up behaviors. The current study distinguished between sexual behaviors within a romantic relationship and sexual behaviors without romantic attachment, often termed casual sex. Hooking-up behaviors are understood to be sexual behaviors with someone who is not identified as a romantic relationship partner (or, in other words, sex with a casual and uncommitted partner). In the current study, this construct was measured with one item, "Not counting the people you have described as romantic relationships, have you ever had a sexual relationship with anyone?" at wave 1

(M = 0.29, SD = 0.01) and wave 2 (M = 0.21, SD = 0.01).

Consistent contraceptive use. Contraceptive use practices were considered to be consistent if an adolescent reported using birth control the first time he or she had sex, and also using it the most recent time. Consistent contraceptive use was assessed using two dichotomous items, "Did you or your partner use any method of birth control the first time you had sexual intercourse?" (M = 0.72, SD = 0.48), and "Did you or your partner use any method of birth control when you had sexual intercourse most recently?" (M= 0.69, SD = 0.47). Each item was coded 0 or 1 for “no” or “yes” responses, respectively. These two items were used to form four categories reflecting whether an adolescent was consistent in his or her use of contraception between the first time of sexual intercourse and the most recent time. The four categories included: (1) not having used any contraception at either time of sex, (2) having used contraception at the first time of sex but not during the most recent sexual encounter, (3) having used contraception at the most recent time of sex but not at the first time of sex, and (4) having used contraception at both times.

Control and covariate measures. Several demographic factors, including age, gender, race/ethnicity, parent education, parent occupational prestige, family income, and family structure were controlled during analysis. Age at wave 1 was calculated using the recommendations and syntax published by Add Health researchers (Harris, et al., 2009). Gender was self-reported by participants, and confirmed by the interviewer. A variable for race/ethnicity was created guided by procedures used in previous work published using the Add Health data set (Kao & Joyner, 2005). To create this variable, adolescents were categorized into one of three exclusive categories according to what they indicated

as their racial group: white, black, or Asian. In order to be classified into one of these categories, adolescents must have indicated they were not of Hispanic origin, nor belonged to a second racial group. A fourth category, Hispanic, included all adolescents who reported being of Hispanic origin and specified a race category of "other." A fifth category, "mixed-race," included all adolescents who reported belonging to more than one racial category, or being of Hispanic origin and another specified race.

Family characteristics were included as a composite measure of socioeconomic status. Parent education was measured as the highest level of education achieved for either mother or father, as reported by the adolescent. Parent occupational prestige was measured from the adolescent-reported occupation of either mother or father, whichever was the highest in prestige (Wang & Benner, 2014). The variable for occupational prestige was created by sorting the reported parent occupation into one of four categories and was treated as continuous in analyses; occupational prestige was given a value of "4" if the adolescent reported their parent's occupation to be doctor, teacher, manager or specialized technician. Occupational prestige was given a value of "3" if adolescents reported their parent occupation to be an office-worker, sales clerk, craftsman or mechanic. Occupational prestige was given a value of "2" if the adolescent reported their parent's occupation to be in any of the following industries: service, construction, manufacturing (i.e., factory worker), transportation, or farm. Occupational prestige was given a value of "1" if the adolescent reported their parent's occupation as "none." Family income was measured from the parent report of household income. Family structure was measured by whether or not an adolescent lived with both biological parents. Family structure was coded as "intact" if the adolescent reported living with both

biological mother and father, and “non-intact” if the adolescent reported living with any other parental figures (i.e., one biological parent and one non-biological parent, or no secondary parental figure).

Analyses included design-based variables as recommended by Add Health researchers (Chantala, Tabor, & Health, 1999). The school identity variable (PSUSCID) was used as a clustering variable, and the region variable (REGION) was used as the stratification variable. All analyses also used the grand sample weight recommended for combining waves 1 and 2 (GSWGT2).

Data Analysis Plan

Data analysis occurred in three steps using SAS 9.3 and MPlus 6 software: 1) Confirmatory factor analysis, 2) Latent profile analysis and analysis of variance, and 3) Logistic regression. Throughout the analyses, the grand sample weight variable recommended for research using waves 1 and 2 was used to prevent any bias caused by oversampling of certain populations, along with the region information variable and the cluster variable, per the recommendations of the original Add Health researchers (Chantala & Tabor, 2010; Harris et al., 2009). Missing data were handled throughout using the full information maximum likelihood (FIML) method to maximize the number of observations available.

Confirmatory factor analysis. Confirmatory factor analysis was first employed to determine the five constructs to be used as indicators in latent profile analysis. Analysis was theoretically driven by the theory of planned behavior (TPB). Multiple Add Health sections were assessed for conceptual fit with each of the various aspects of the TPB model, and the hypothesized constructs were validated through PROC CALIS (Covariance Analysis of Linear Structural Equations) procedures in SAS 9.3, which is commonly used for confirmatory factor analysis. Items from various sections were first selected if they asked adolescents about sexual intercourse or birth control, and were then further grouped into each hypothesized construct (attitudes, subjective norm, and perceived behavioral control). Multiple iterations of confirmatory factor analysis were evaluated to meet both the theoretical framework for the theory of planned behavior, and recommended fit indices: comparative fit index (CFI) > 0.90 (Hu & Bentler, 1999), a standardized root mean square residual (SRMR) < 0.08, and a root mean square error

approximation (RMSEA) < 0.06 (Jackson, Gillaspy Jr, & Purc-Stephenson, 2009; Kline, 2011). Analysis confirmed the existence of five factors, with a total of 19 items in a single model, that met all criteria recommendations at wave 1 (CFI=0.90, RMSEA=0.08, SRMR=0.05) and wave 2 (CFI = 0.91, RMSEA = 0.07, SRMR = 0.05). Items loaded onto each factor at a minimum of 0.40, and reliabilities for each factor were also assessed with Cronbach's alpha (see Table 2).

Latent profile analysis. The second step was to conduct latent profile analysis across the five constructs (two constructs for readiness for sexual intercourse and three constructs for readiness for use of contraceptives) to examine the existence of the five a priori profiles. A latent profile approach allowed for the established taxonomy to reflect how the five constructs may vary within a single profile; for example, an adolescent may hold positive attitudes toward sexual intercourse but not toward contraception, and may not believe him- or herself capable of stopping and using contraception during moments of high arousal.

Latent profile analysis was guided by recommendations presented by researchers including Flaherty & Kiff (2012), Aldridge & Roesch (2008), and Muthén & Muthén (1998). Each profile was considered mutually exclusive, and an individual's probability of belonging to a given profile was used to determine which profile was used to classify that same individual. All members within a profile were considered homogenous in the third part of the analysis (logistic regression), and profile membership was considered responsible for item covariance. To determine the best fitting model, models were compared using the log-likelihood ratio and the Lo Mendell Rubin adjusted LRT test (LMR) (Schmiege, Meek, Bryan, & Petersen, 2012). The log-likelihood for the

chosen model, in this case hypothesized to be the five-solution model (five latent profiles), was compared to the four-profile model (one profile fewer than the selected model). A significant Lo Mendell Rubin adjusted LRT test value would indicate that the chosen k model provides a significantly better fit than the k – 1 model (UCLA, 2014). Both AIC and BIC criteria were also examined, and conclusions drawn following the recommendation that the lowest scores indicate the best fit (Kline, 2011). The entropy criterion was also assessed to help determine the accuracy of profile membership; as recommended, values closer to 1.0 will indicate better fit (Aldridge & Roesch, 2008). This analysis also provided information such as latent profile proportions, which indicate the statistical likelihood that a participant belongs in a certain profile. Latent profile proportions were used to hard-classify participants into the profile each participant most likely belonged to.

Profiles were expected to vary on all dimensions (i.e., be statistically significantly different); this would later be examined using analysis of variance (ANOVA) procedures as part of the second aim of the current study. Additionally, profiles were expected to vary foremost according to adolescents' readiness to engage in sexual intercourse; that is, one profile may include participants who feel most ready to engage in sexual intercourse (i.e., adolescents who are impulsive in their sexual decisions), while the remaining profiles may include participants with lower readiness for sexual intercourse who are less likely to engage in sex. In regards to sexual intercourse, it was expected that profiles that captured adolescents who felt more ready for sexual intercourse would be characterized by higher levels of positive attitudes and a more positive subjective norm. Secondly, profiles were expected to vary according to participants' readiness to use contraception,

so that profiles would also indicate the likelihood that an adolescent will employ birth control during sex. In regards to birth control, it was expected that profiles that captured adolescents who felt more ready to use contraception would be characterized by higher levels of positive attitudes, a more positive subjective norm, and more perceived behavioral control.

Logistic Regression. The last phase of analysis assessed the association of each profile with three outcome behaviors through logistic regression. The outcome behaviors for the current study illustrated a range of increasingly active sexual behaviors, beginning with sex-active status (i.e., abstinent vs. sexually active) and moving through to sexual intercourse with uncommitted partners (i.e., casual sex), and additionally, consistent contraceptive use. Logistic regression was used for all analyses, since all outcome behaviors were measured through dichotomous or categorical items. For analyses, participants were dummy coded into a specific profile according to each individual's most likely profile membership (UCLA, 2014).

Logistic regression was guided by recommendations presented by researchers Peng, Lee, and Ingersoll (2002). Logistic regression examines the odds of each outcome behavior for individuals within each profile. The resulting odds ratios for each outcome behavior indicate the odds (compared to 1) that a member of a given profile will also engage in the examined behavior compared to a member of a reference profile. The odds ratios for each profile were expected to show that, compared to the profile "impulsive adolescents," every other profile except that of "hasty or unrestrained adolescents" had less than 1 odds of engaging in either sexual intercourse or hooking up, but greater than 1 odds of using contraception consistently (i.e., at both first time of sex and most recent

time of sex). Significance for each odds-ratio estimate would be indicated by confidence intervals not containing 1.

Analysis of Variance. Analysis of variance (ANOVA) was conducted in order to distinguish whether the composition of each profile varied by individual constructs. For example, it was hypothesized that there would be a statistically significant difference when comparing profiles to each other based on the construct of adolescent attitudes. Profiles were compared in various permutations to contrast each profile against all others. This difference would result from the conceptual derivation of the hypotheses about the profiles – for example, that some adolescents would feel more positively about sex and birth control compared to others. This difference would also result from the methodology used in constructing the profiles (namely, latent profile analysis), which should itself distinguish subpopulations of adolescents. Additionally, this analysis also showed whether any profiles were similar, or lacked statistically significant differences, in any of the five constructs. If profiles lacked significant differences on some constructs (e.g., adolescents' attitudes toward sexual intercourse and perceived subjective norm for sexual intercourse) but were significantly different on another (e.g., adolescents' perceived behavioral control for contraception), it would be concluded that adolescents' endorsement of particular constructs was responsible for their membership in a specific profile.

Results

The final sample size for latent profile analysis was 8,152 participants, with 49% female and 51% male (see Table 10). Of these, 8,122 were used at wave 1 in latent profile analysis and 8,138 were used at wave 2. These were also the sample sizes for logistic regression analyses, which required participants to have non-missing information for profile membership. The mean age of participants at wave 1 was 16 years of age, and at wave 2 was 17 years of age (see Table 1). Of the sample, 66% of participants indicated being white, 15% indicated being black, 3% indicated being Asian, 5% indicated being Hispanic, and 10% were categorized as mixed-race (see Table 14). At wave 1, 56% of the sample reported not being sexually active and 44% of the sample reported being sexually active (i.e., having had sexual intercourse) (see Table 18). At wave 2, the percentage of adolescents reporting not having had sexual intercourse decreased to 46%, and the number reporting having had sexual intercourse increased to 54% (see Table 20). At wave 1, 41% of the sample reported having had no romantic relationship in the previous 18 months and 59% reported having had a romantic relationship in the previous 18 months (see Table 22). At wave 2, only 37% of the sample reported not having had a romantic relationship in the previous 18 months, while 63% reported a relationship (see Table 24).

Latent profile analysis

Wave 1 analysis examined possible models, containing one to six profiles. Consistent with recommendations (Kline, 2011), fit indices – including the loglikelihood, BIC, ABIC, entropy, and LMR values and class distribution – were compared across solutions to determine the best fitting solution. Solutions were compared in a k to k-1 fashion, so each solution was compared to the solution with one fewer classes until no

further improvement was seen between models. Solutions were first compared through their loglikehood, BIC, and ABIC values; secondly, their entropy and LMR values (Kline, 2011); and finally, their class distribution. The five-profile solution was determined to be the best fitting solution for the current data, which supported the hypothesized five profiles at wave 1 (see Table 5).

Analysis proceeded in a step-wise fashion, comparing a model with a given number of classes (one through six) sequentially to the model with one class less (e.g., the two-class solution was first compared to the one-class solution). Tables 5 (wave 1) and 6 (wave 2) illustrate the enumerating information used in determining which solution best fit the current models. First, the two-class solution was compared to the one-class solution, and it was determined that the two-class solution provided a better fit than the one-class solution. Compared to the one-class solution, the two-class solution had lower loglikelihood, BIC and ABIC values, and significant LMR and entropy values. The three-class solution was then compared to the two-class solution. It was determined that the three-class solution showed some improvement in the loglikelihood, BIC and ABIC values compared to the two-class solution, and that the entropy and LMR values were also significant. The four-class solution was then compared to the three-class solution to determine if any improvement was seen in the four-class model. The difference in loglikelihood, BIC, and ABIC values between these solutions indicated some improvement. This, along with a statistically significant entropy value, indicated that the four-class solution was a better fit than the three-class solution. The four-class solution, however, did not produce a statistically significant LMR value; thus, it was determined that the four-class solution did not have greater statistical stability than the three-class

solution. The five-class solution was then compared to the four-class solution. The loglikelihood, BIC, and ABIC values indicated improvement from the four to the five-class solution. The entropy value for the five-class model was significant and similar to that of the four-class solution. The five-class solution, however, had a statistically significant LMR value, which indicated that it was a better fitting solution than the four-class model. Finally, the six-class solution was compared to the five-class solution. The differences in the loglikelihood, BIC, and ABIC values indicated that these values had begun to plateau between the five and six class solutions (see Figures 2-4). The leveling off of these indices is often used as an indicator of best fit in latent profile analysis. Additionally, the six-class solution had a significant entropy value, but a non-significant LMR value. The non-significant LMR value here suggests that the sixth class was unnecessary, and five classes were sufficient (UCLA, 2014).

In conclusion, wave 1 results indicated that improvement between solutions was best demonstrated by the five-class solution fit indices. As shown in Table 5, the log-likelihood value, BIC, and ABIC values began to plateau at the five-class solution. The entropy value for this solution was acceptable at 0.72 and the LMR value was 0.03. The distribution of participants in each profile also supported this solution, as each profile had greater than 10% of the sample. Membership in each profile ranged from 12% to 28% of the total sample.

Latent profile analysis of wave 2 data was conducted in similar fashion to the analysis for wave 1 data. Six models were examined sequentially, and compared to the k-1 model to determine the number of profiles that best captured adolescent readiness for sexual behaviors at wave 2. The fit indices for each model were compared just as in wave

1 analyses. Table 6 illustrates the enumeration process for wave 2 analyses. Similarly to results for wave 1, models improved most between the four- and five-class solutions. The five-class solution was then compared to the six-class solution to determine if any further improvement occurred with the addition of a sixth profile. Most fit indices showed that either the five- or six-class solution could provide appropriate fit for wave 2 data. However, the entropy value for the five-class solution suggested that the five-class solution provided the best fit for wave 2 data. Membership in each profile found at wave 2 ranged from 3% to 44% of the sample.

The five profiles that resulted from wave 1 analyses were then compared to the profiles resulting from wave 2 analyses. Figures 5-14 illustrate comparisons of the profile characterizations at waves 1 and 2 for each profile. Tables 7 and 8 illustrate the mean levels of each indicator by profile and confirm that each profile held statistically significant different mean values for each indicator variable compared to all other profiles. Across waves 1 and 2, four profiles were found to be consistent. The fifth profile at wave 2 did not closely match the pattern indicated by the fifth (remaining) profile at wave 1. Below, the four consistent profiles are discussed first, followed by discussion of the fifth profiles at each wave.

Analysis of variance across profiles.

Analysis of variance and contrast procedures were also conducted to determine whether profiles were significantly different from each other by each indicator. The results of these analyses by individual indicator (e.g., attitudes for sexual intercourse) are shown in Table 7 for wave 1 and Table 8 for wave 2. Results indicated that the means reported by each profile for each indicator were significantly different from the means of

other profiles for both waves. Analysis of contrast was also conducted between all profiles in a series of permutations that allowed for the comparison of the mean levels of each indicator to each profile. For example, as Table 7 shows, "conservatively-reared adolescents" had the lowest mean for positive attitudes toward sexual intercourse, followed by "well-controlled adolescents," "precarious adolescents," "hasty adolescents," and lastly, "impulsive adolescents," who had the highest mean for this construct. This leads to the conclusion that although means for specific indicators may appear similar across profiles, they are indeed sufficiently different from each other to be distinguishable with statistical significance at a .0001 level. These results support the comparisons between profiles used in latent profile analysis.

Profile 1: "Impulsive Adolescents." One of the four profiles that remained consistent across waves was termed "impulsive adolescents." This profile included 12% of the sample at wave 1 (n=963) and 21% of the sample at wave 2 (n=1713). At wave 1, this profile included 4.38% of adolescents who were 15 years old, 3.98% of 16-year olds, and 3.52% of 17-year olds (see Table 9). This profile included only one 14-year old adolescent (see Table 9). Of the adolescents who were males in the sample, 17% were members of this profile at wave 1 (see Table 11) and 30% at wave 2 (see Table 13). Of the female adolescents in the sample, 6% were members of this profile at wave 1 and (see Table 11) and 12% at wave 2 (see Table 13). Profile membership also varied by race at wave 1 (see Table 14) and wave 2 (see Table 16). At wave 1 (see Table 15), 11% of adolescents who were categorized as "white" were profiled as "impulsive," compared to 19% of white adolescents at wave 2 (see Table 17). Black, Asian, and Hispanic students were similarly distributed in the "impulsive" category, each with about 14.5% of their

sample population in this profile at wave 1 (see Table 15). Additionally, 12% of mixed-race adolescents were members of the impulsive adolescents profile (see Table 15). As shown in Table 17, at wave 2, the percentage of black adolescents classified as "impulsive" increased to 23%, the percentage of Asian adolescents in this category increased to 21%, and the percentage of Hispanic adolescents increased to 29%. Mixed-race adolescents who were profiled as "impulsive" also increased to 25% at wave 2 (see Table 17). By sex-active status (i.e., whether or not you have engaged in sexual intercourse), 8% of adolescents who reported not being sexually active were classified as "impulsive adolescents" compared to 16% of adolescents who reported having had sexual intercourse at wave 1 (see Table 19). At wave 2, 18% of adolescents who reported not being sexually active were classified as "impulsive adolescents" compared to 24% of adolescents who reported having had sexual intercourse (see Table 21). By relationship status, 10% of adolescents who reported no romantic relationship in the previous 18 months were classified as "impulsive," compared to 13% who reported having had a romantic relationship at wave 1 (see Table 23). At wave 2, 20% of adolescents who reported no romantic relationship in the previous 18 months were classified as "impulsive," compared to 22% who reported having had a romantic relationship (see Table 25).

Compared to adolescents in other profiles at wave 1 (see Table 7), adolescents in this profile reported the most positive attitudes toward sexual intercourse. The mean for perceived subjective norm for sexual intercourse was only greater for adolescents in the "hasty" profile. Impulsive adolescents also reported lower positive attitudes toward birth control and lower perceived behavioral control compared to all profiles except precarious

adolescents. At wave 2 (see Table 8), impulsive adolescents continued to report the highest positive attitudes for sexual intercourse, and also the highest perceived subjective norm for sexual intercourse. The means for their reported attitudes toward birth control and perceived behavioral control for birth control use were greater than the means reported by "unrestrained adolescents" (lowest) and "precarious adolescents" (second-lowest), but lower than the means reported by "conservatively-reared adolescents" (second-highest) and "well-controlled adolescents" (highest) (see Table 8).

Conceptually, these adolescents are reporting greater approval (positive subjective norm) from their parents for both sexual intercourse and birth control than their own attitudes for either. Parents of these adolescents may be promoting the use of contraception over sexual intercourse itself, as can be concluded from adolescents' reports of greater positive subjective norms for contraception than for sexual intercourse. However, these adolescents report only moderate self-efficacy (perceived behavioral control) for using birth control compared to adolescents in other profiles. Taken together, these results may mean that adolescents belonging to this profile receive positive messages about using contraception from parents (e.g., if you are going to have sexual intercourse, use proper contraception), but do not make a decision about whether or not to use contraception until a situation presents itself. This characteristic lack of planning gives this profile its label of "impulsive adolescents." This profile was used in subsequent analysis as the reference group to which all other profiles were compared.

Profile 2: "Precarious Adolescents." A second profile consistent across waves was characterized by adolescents who appeared uncertain about their readiness for both sexual intercourse and contraception. This profile included 12% of the sample at wave 1

(n=942) and 9% of the sample at wave 2 (n=703). At wave 1, this profile included 5.32% of adolescents who were 15 years old, 4.08% of 16-year olds, and 2.13% of 17-year olds (see Table 9). This was the only profile not to include any 14-year old adolescents (see Table 9). Of the adolescents who were males in the sample, 10% were members of this profile at wave 1 (see Table 11) and 9% at wave 2 (see Table 13). Of the female adolescents in the sample, 13% were members of this profile at wave 1 (see Table 11) and 9% at wave 2 (see Table 13). Profile membership also varied by race at wave 1 (see Table 14) and at wave 2 (see Table 16). At wave 1 (see Table 15), 11% of adolescents who were categorized as "white" were profiled as "precarious adolescents." Of adolescents who indicated being black, 9% were profiled as "precarious adolescents" (see Table 15). Of Asian adolescents, 17% were profiled as "precarious," and of Hispanic adolescents, 17% were profiled as "precarious" (see Table 15). Twelve percent of adolescents who were categorized as mixed-race were also categorized as "precarious" (see Table 15). At wave 2, 8% of white adolescents, 5% of Black adolescents, 23% of Asian adolescents, 15% of Hispanic adolescents, and 9% of adolescents categorized as mixed-race were also profiled as "precarious adolescents" (see Table 17). For adolescents who reported not being sexually active, 15% were profiled as "precarious" at wave 1 (see Table 19) and 13% at wave 2 (see Table 21). Of adolescents who reported having had sexual intercourse, 7% were profiled as "precarious" at wave 1 (see Table 19) and only 5% at wave 2 (see Table 21). By relationship status, 11% of adolescents who reported no romantic relationship in the previous 18 months were profiled as "precarious adolescents," and 11% of adolescents who reported having had a romantic relationship at wave 1 were also classified as "precarious adolescents" (see Table 23). At wave 2, the

percentage of adolescents who reported no previous relationship and were classified as precarious decreased to 9%, as did the percentage of adolescents who did report having had a romantic relationship, to 8% (see Table 25).

Compared to impulsive adolescents, precarious adolescents had lower mean levels of all five indicators at both waves (see Tables 7 and 8). At wave 1, "precarious adolescents" also had the lowest mean level of positive attitudes toward birth control, subjective norm for birth control, and perceived behavioral control for birth control compared to all other profiles (see Table 7). At wave 2, "precarious adolescents" continued to have the lowest mean level of subjective norm for birth control compared to all other profiles, and also had the lowest level of subjective norm for sexual intercourse (see Table 8).

This profile is primarily characterized by a mismatch between adolescents and their parents on the subject of sex. Adolescents who are members of this profile hold attitudes toward sexual intercourse and birth control that are more positive than what they report their parent would approve of. This can be deduced from the large difference between these adolescents' attitudes and their perceived subjective norm. This mismatch suggests that parents disapprove of their adolescents having sex and using birth control. This general disapproval from parents may contribute to the lack of lack of self-efficacy reported by adolescents in this profile. It is likely that these factors together are creating an atmosphere of uncertainty for these adolescents, and that their sexual behaviors and decisions about birth control will be determined by the situations they encounter.

Profile 3: "Well-controlled Adolescents." A third profile consistent across waves includes adolescents who were characterized as having a high sense of control. These

adolescents appear to have a potentially inflated belief in their own ability to control themselves in a sexual situation (i.e., stop during arousal and use birth control). This profile included 28% of the sample at wave 1 (n=2,307) and 44% of the sample at wave 2 (n=3,536). At wave 1, this profile included 10.63% of adolescents who were 15 years old, 10.63% of 16-year olds, and 7.14% of 17-year olds (see Table 9). This profile included four 14-year old adolescents (0.06%) (see Table 9). Of the male adolescents in the sample, 26% were members of this profile at wave 1 (see Table 11) and 42% at wave 2 (see Table 13). Of the female adolescents in the sample, 31% were members of this profile at wave 1 (see Table 11) and 45% at wave 2 (see Table 13). Profile membership by race is shown in Table 14 for wave 1 and Table 16 for wave 2. As shown in Table 15, 31% of white adolescents, 27% of black adolescents, 24% of Asian adolescents, and 17% of Hispanic adolescents were classified as "well-controlled adolescents" at wave 1. Additionally, 22% of mixed race adolescents also belonged to this profile at wave 1 (see Table 15). At wave 2, the within-race membership percentages for adolescents classified as precarious increased. Forty-six percent of white adolescents belonged to the "well-controlled" profile, as did 47% of black adolescents, 20% of Asian adolescents, 25% of Hispanic adolescents, and 40% of mixed-race adolescents (see Table 17). Sex-active status information by each profile is shown in Table 18. Overall, 30% of adolescents who reported not being sexually active were classified as "well-controlled adolescents" compared to 27% of adolescents who reported having had sexual intercourse at wave 1 (see Table 19). At wave 2, 32% of adolescents who reported not being sexually active were classified as "well-controlled adolescents" compared to 53% of adolescents who reported having had sexual intercourse (see Table 21). It is important to note the increase

in adolescents who were profiled as "well-controlled" at both waves and became sexually active between waves 1 and 2. By relationship status, 29% of adolescents in this profile reported no romantic relationship in the previous 18 months, and 28% reported having had a romantic relationship at wave 1 (see Table 23). At wave 2, 45% of students who reported no previous relationship, and 43% of adolescents who did report a previous romantic relationship, were classified as "well-controlled" (see Table 25).

At wave 1, adolescents in this profile reported lower positive attitudes toward sexual intercourse and a lower subjective norm for sexual intercourse compared to impulsive adolescents (see Table 7). These adolescents also reported the highest positive attitudes for birth control at wave 1 (see Table 7). Their reported subjective norm for birth control and perceived behavioral control were also very high at wave 1, surpassed only by "hasty adolescents" and "conservatively-reared adolescents," respectively (see Table 7). At wave 2, "well-controlled" adolescents had the highest positive attitudes toward birth control, the most positive subjective norm for birth control, and the greatest perceived behavioral control for birth control (see Table 8).

Conceptually, this profile is driven by adolescents' high level of perceived self-efficacy. Adolescents who are members of this profile believe themselves to be capable of using birth control, more than they seem to agree with the use of birth control in general. Additionally, their parents may be relaying mixed messages about the degree to which they approve of their adolescent engaging in sex and using birth control, but are emphasizing safe sex.

Profile 4: "Conservatively-reared Adolescents." The final profile that was consistent across waves included adolescents who were characterized as having

"conservative" parents. These adolescents report the lowest levels of perceived subjective norm for sexual intercourse (i.e., parental approval) amongst all profiles at wave 1 (see Table 7). This profile included 27% of the sample at wave 1 (n=2,169) and 24% of the sample at wave 2 (n=1,942). At wave 1, this profile included 11.35% of adolescents who were 15 years old, 8.93% of 16-year olds, and 6.29% of 17-year olds (see Table 9). This profile included three 14-year old adolescents (0.06%) (see Table 9). Of the male adolescents in the sample, 19% were members of this profile at wave 1 (see Table 11), and 16% at wave 2 (see Table 13). Of the female adolescents, 34% were members of this profile at wave 1 (see Table 11) and 32% at wave 2 (see Table 13). In terms of race, 27% of white adolescents belonged to this profile at wave 1 (see Table 15). Additionally, 22% of black adolescents, 35% of Asian adolescents, 31% of Hispanic adolescents, and 29% of mixed-race adolescents were also profiled as "conservatively-reared adolescents" at wave 1 (see Table 15). At wave 2, these membership proportions varied slightly; 24% of white adolescents, 21% of black adolescents, 29% of Asian adolescents, 27% of Hispanic adolescents, and 22% of mixed-race adolescents were profiled as "conservatively-reared adolescents" (see Table 17). By sex-active status, 34% of adolescents who indicated not being sexually active were profiled as "conservatively-reared," compared to 16% of adolescents who indicated past sexual intercourse and were also members of this profile at wave 1 (see Table 19). At wave 2, the profile of "conservatively-reared adolescents" held the greatest percentage of adolescents who indicated not being sexually active, 35% (see Table 21). By relationship status, 27% of adolescents in this profile reported no romantic relationship in the previous 18 months, and 26% of those who reported having had a romantic relationship at wave 1 belonged to this profile (see Table 23). At wave 2,

22% of adolescents who reported no previous relationship and 25% of adolescents who reported having had a previous romantic relationship belonged to this profile (see Table 25).

Compared to all other profiles at wave 1, "conservatively-reared" adolescents reported the lowest levels of positive attitudes for sexual intercourse, and also the lowest perceived subjective norm for sexual intercourse (see Table 7). Compared to impulsive adolescents, adolescents in this profile reported more positive attitudes toward birth control, and a lower subjective norm for birth control at wave 1 (see Table 7). These adolescents also reported the highest perceived behavioral control for contraceptive use (see Table 7). At wave 2, "conservatively-reared" adolescents reported lower positive attitudes and subjective norms for sexual intercourse compared to impulsive adolescents (see Table 8). These adolescents also reported greater positive attitudes for birth control and greater perceived behavioral control for contraceptive use compared to impulsive adolescents (see Table 8).

This profile is distinguished by a more negative subjective norm for both sexual intercourse and contraception, which may reflect the expectations and beliefs of conservative parents who do not endorse these behaviors in adolescence. Interestingly, however, adolescents' attitudes do not reflect their parents' messages; in fact, they report moderately positive attitudes for both sex and birth control, and an even higher degree of self-efficacy. Adolescents in this profile may receive negative messages from their parents, but ultimately receive more positive messages from other sources – peers, perhaps, or school-based sex education – that allow them to think more positively about birth control and develop a sense of self-control.

Profile 5a: “Hasty Adolescents.” The fifth profile to emerge at wave 1 included adolescents who could be characterized as “hasty.” This profile accounted for 21% (n=1,742) of the sample, and 27% of male adolescents and 16% of female adolescents in the sample at wave 1 (see Table 11). At wave 1, this profile included 5.39% of adolescents who were 15 years old, 8.11% of 16-year olds, and 7.95% of 17-year olds (see Table 9). This profile included two 14-year old adolescents (0.04%) (see Table 9). Membership in this profile varied markedly across the examined racial and ethnic groups. Of white adolescents, 20% were classified as “hasty,” compared to 29% of black adolescents 21% of Hispanic adolescents, and 25% of mixed-race adolescents (see Table 15). Only 9% of Asian adolescents were classified as “hasty” (see Table 15). This profile had the greatest percentage of adolescents who reported having had sexual intercourse, 34% (see Table 19). By relationship status, 21% of adolescents who reported no romantic relationship in the previous 18 months were characterized as “hasty,”with 21% of adolescents who reported having had a romantic relationship also belonging to this profile (see Table 23).

These adolescents had more positive attitudes toward sexual intercourse compared to those belonging to other profiles, except for impulsive adolescents (see Table 7). They also had the greatest mean level of positive perceived subjective norm for sexual intercourse compared of all the profiles (see Table 7). As for birth control, adolescents in this profile reported the most positive subjective norm (see Table 7). Further, their reported level of perceived behavioral control was higher than that reported by impulsive adolescents, but lower than those of “well-controlled” and “conservatively-reared” adolescents (see Table 7).

Conceptually, “hasty adolescents” may be receiving positive messages from their parents about sex (specifically, about the importance of healthy sex) that are translating into greater readiness for healthy sexual intercourse. Those in this profile are expected to be more likely to be sexually active than impulsive adolescents, and also more likely to use contraception consistently.

Profile 5b: “Unrestrained Adolescents.” In wave 2, the profile characterized as “hasty adolescents” did not emerge with sufficient clarity to be considered the same as the wave 1 profile. Instead, the fifth profile at wave 2 seemed to include adolescents who could be best described as “unrestrained.” Although this profile represented only 3% (n=244) of the sample, it was determined that there were enough adolescents in it to merit further analysis. This profile included 4% of the male adolescents in the sample at wave 2, and 2% of the female adolescents in the sample at wave 2 (see Table 13). Only 2% of white adolescents were classified as “unrestrained,” along with 5% of Black adolescents, 6% of Asian adolescents, 3% of Hispanic adolescents, and 4% of mixed-race adolescents (see Table 17). Of adolescents who reported having had sexual intercourse at wave 2, 3% were classified as “unrestrained” (see Table 21). By relationship status, 3.47% of adolescents who reported no romantic relationship in the previous 18 months and 2.65% of adolescents who reported having had a romantic relationship were characterized as “unrestrained” (see Table 25).

Overall, adolescents in this profile seemed to be most distinguishable from those in other profiles by their much lower level of perceived behavioral control (see Table 4). Adolescents in this profile were also hypothesized to be more likely to engage in sexual intercourse compared to impulsive adolescents, but less likely to employ contraception

consistently.

Logistic regression analysis

The second research question in the current study sought to examine the relationship between each of the identified profiles and three outcome behaviors. These relationships were examined in three models. First, a cross-sectional model at time 1 (i.e., wave 1) examined profiles at wave 1 and outcomes at wave 1. Second, a longitudinal model examined profiles at wave 1 and outcomes at wave 2. Third, a cross-sectional model at time 2 (i.e., wave 2) examined profiles at wave 2 and outcomes at wave 2. Each outcome behavior was examined at each of the three time-specified models. Additionally, each outcome behavior was first examined without covariates, and then re-analyzed including all covariates. As shown in Table 26, for example, the overall model was cross-sectional at time 1 and examined wave 1 profiles and wave 1 outcomes. Within each outcome assessed, "model 1" included only the profiles and the outcome of interest, and "model 2" included the profiles, the outcome of interest, and covariates. Each outcome's "model 2" included the following covariates: age, gender, race/ethnicity, parent education, parent occupation, income, and family structure. In the longitudinal model (see Table 27) and the cross-sectional model at time 2 (see Table 28), sex-active status was also included as a covariate when examining engagement in sexual intercourse, in order to control for adolescents who reported already having had sexual intercourse at wave 1. Having had sexual intercourse at wave 1 was not included as an additional covariate in the analyses for hooking-up behaviors and contraceptive use because the analytic sample for these models required students to have identified as sexually active. The profile of "impulsive adolescents" was used as the reference group for all analyses,

and the confidence interval for each estimate was used to assess if the odds ratio estimates would be considered significant. Models that included covariates used "white" as the reference group for race/ethnicity, "male" as the reference group for gender, and "non-intact" as the reference group for family structure.

Engagement in Sexual Intercourse by Profile. Across each of the examined models using wave 1 profiles, the cross-sectional at wave 1 model (see Table 26) and the longitudinal model examining wave 1 profiles and wave 2 sexual intercourse (see Table 27), "hasty adolescents" had greater-than-1 odds of engaging in sexual intercourse compared to the reference group ("impulsive adolescents"). This remained statistically significant in model 1 without covariates and in model 2 with covariates for both cross-sectional models, and in model 1 in the longitudinal analyses. All other profiles indicated less-than-one odds of engaging in sexual intercourse in both time-specified models. More specifically, in the cross-sectional at time 1 model (see Table 26), "hasty adolescents" were 46% (1.46, [1.08 – 1.97]) more likely and "conservatively-reared" adolescents were 72% (0.28, [0.22 – 0.36]) less likely to engage in sexual intercourse than impulsive adolescents (see Table 26). In the cross-sectional model at time 1, model 2, which included covariates, "conservatively-reared adolescents" had the lowest likelihood of engaging in sexual intercourse compared to impulsive adolescents. In the longitudinal model, however, "precarious adolescents" were found to have the lowest odds of engaging in sexual intercourse compared to impulsive adolescents (0.37, [0.23 – 0.62]) (see Table 27). In the longitudinal analyses of model 2 for engagement in sexual intercourse, all but two estimates were found to have implied statistical significance: the odds ratios for "well-controlled adolescents" and "hasty adolescents" (see Table 27). In

model 2 of the longitudinal analyses (wave 1 profile to wave 2 sexual intercourse, including covariates and controlling for sexual activity at wave 1), the profile of "well-controlled" adolescents also had a less-than-one odds ratio, but was not shown to have implied significance (see Table 27). In this same model, the profile for "hasty adolescents" also did not have a confidence interval that implied significance (see Table 27).

Table 28 illustrates results for cross-sectional analyses using wave 2 data. In the analysis using model 2 (which included covariates) for engagement in sexual intercourse, only two profiles were found to have a greater-than-one odds of engaging in sexual intercourse. The "well-controlled" profile showed a 1.61 [1.13 – 2.31] odds of engaging in sexual intercourse compared to impulsive adolescents, and a confidence interval that implied significance (see Table 28). The "unrestrained adolescents" profile showed a 2.04 [1.03 – 4.03] odds of engaging in sexual intercourse compared to impulsive adolescents, and a confidence interval that implied significance (see Table 28).

Engagement in Hooking-Up Behaviors by Profile. Compared to impulsive adolescents, no profile had greater-than-one odds and implied statistical significance for engaging in hooking-up behaviors in any analytical model. Wave 1 cross-sectional analysis model 2 showed that the profile "precarious adolescents" was least likely to engage in hooking up (casual sex) compared to "impulsive" adolescents (0.42, [-.23 – 0.76]) (see Table 26). In longitudinal analysis model 2 for hooking-up behaviors, the profile identified as "well-controlled adolescents" showed the lowest odds of engaging in casual sex, and this was the only estimate in these models that showed any potential significance (0.60, [0.40 – 0.88]) (see Table 27). Analysis of wave 2 profiles and wave 2

hooking up (wave 2 cross-sectional model 2) also supported the idea that compared to impulsive adolescents, no other profile had a statistically significant greater likelihood of engaging in casual sex with a non-romantic partner (see Table 28). In this model, "precarious" adolescents (1.27, [0.75 – 2.15]) and "unrestrained" adolescents (1.58, [0.78 – 3.21]) both had greater-than-one odds of engaging in hooking-up behavior compared to "impulsive adolescents," but this finding was without statistical significance (see Table 28).

Consistent Contraceptive Use by Profile. Models examined the odds ratios for adolescents in each profile in terms of whether they used contraception at the first time of sex, at the most recent time of sex, at neither time, or on both occasions, for the three time-specified models (i.e., cross-sectionally at waves 1 and 2, and longitudinally), without covariates ("model 1") and with covariates ("model 2").

Cross-sectional analysis of wave 1 profiles and wave 1 contraceptive use including covariates ("model 2") showed that statistical significance was only present for two categories of contraceptive use: on neither occasion (no birth control) and on both occasions (see Table 26). Compared to impulsive adolescents, "precarious adolescents" were twice as likely to have reported not using contraception at either first time of sex or most recent time of sex (2.15, [1.16 – 3.99]) (see Table 26). Compared to impulsive adolescents, "well-controlled," "conservatively-reared," and "hasty" adolescents all had less-than-one odds of reporting having used contraception on neither occasion (see Table 26). Practically, this indicates that adolescents in all three of these profiles should have a greater likelihood of having employed contraception at first sex, at most recent sex, or on both occasions compared to "impulsive adolescents." This is further supported by the

odds ratio estimates for all three profiles for having used contraception at both times compared to impulsive adolescents. For this category, results indicated greater-than-one odds of having employed contraception at both times for adolescents in the "conservatively-reared" profile (1.72, [1.13 – 2.63]) (see Table 26). Adolescents in the "well-controlled" and "hasty" profiles had a greater-than-two odds ratio estimate compared to "impulsive adolescents" (see Table 26). All three of these estimates also had implied significance according to their confidence intervals (see Table 26). These results conceptually support the idea that impulsive adolescents may be less likely to employ consistent contraception.

Longitudinal analyses produced non-significant odds ratio estimates for consistent contraceptive use across all profiles and categories of use (see Table 27). Model 2 in the wave 2 cross-sectional analyses for consistent contraceptive use had only one significant result (see Table 28): namely, compared to impulsive adolescents, adolescents in the "precarious" profile were found to have a less-than-one odds ratio for employing contraception at the most recent time of sexual intercourse only (0.18, [0.06 – 0.57]) (see Table 28).

Discussion

The current study identified a taxonomy describing adolescent readiness for sexual behaviors using a nationally-representative sample of adolescents, and applied the theory of planned behavior in its examination of the factors that may shape adolescents' decisions to engage in sexual intercourse and that help them develop healthy habits, such as using contraceptives appropriately. The taxonomy was examined at two time-points using two waves of data from the National Longitudinal Study of Adolescent to Adult Health, and included six profiles overall: four profiles that were consistent across waves 1 and 2 (i.e., 1) Impulsive adolescents, 2) Precarious adolescents, 3) Well-controlled adolescents, and 4) Conservatively-reared adolescents) and fifth profiles that diverged (Hasty adolescents at wave 1; Unrestrained adolescents at wave 2). The established profiles form a taxonomy that sheds light on adolescents' readiness for sex and birth control, and also their decision-making patterns when it comes to deciding whether or not to have sex, whether or not to have sex casually with non-romantic partners, and whether or not to use contraception. The presented taxonomy is a new contribution to the field of adolescent sex research, as it presents a framework for studying sexual decision-making in adolescence in conjunction with attitudes and beliefs about sex and contraception, rather than in conjunction with behaviors such as substance use. Additionally, the established taxonomy of profiles is generalizable to the overall population of adolescents; indeed one may identify persons in one's life who during adolescence may have fit into one of the established profiles.

In addition to establishing a taxonomy for adolescent readiness, the current study also examined the adolescents' likelihood of engaging in sexual intercourse, having

casual sex, and using contraception consistently; in this way, the current study moved beyond the theoretical characterizations of adolescents provided by the taxonomy and into their actual sexual behaviors. Analyses of the taxonomy at wave 1 showed that compared to the profile of "impulsive adolescents," all profiles except the profile of "hasty adolescents" were significantly less likely to engage in sexual intercourse. These analyses also showed that compared to the profile of "impulsive adolescents," all profiles were significantly less likely to engage in hooking-up behaviors, and all profiles were more likely to use contraception consistently. Cross-sectional analyses of the taxonomy at wave 2 indicated that only the profiles of "unrestrained adolescents" and "well-controlled adolescents" were more likely than "impulsive adolescents" to engage in sexual intercourse. These analyses also showed that compared to "impulsive adolescents," no profile was more likely to engage in hooking-up behaviors, and all profiles except for that of "precarious adolescents" were more likely to use contraception consistently.

The current study moved beyond the typical epidemiological and public health research that has already provided evidence for the prevalence of sexual intercourse among adolescents, and that has tended to focus on the consequences adolescents face if they fail to use contraception appropriately (e.g., pregnancy and infection) (Copen, et al., 2012; Mueller, Gavin, & Kulkarni, 2008). While this previous research has contributed valuable information to the field of adolescent sex research, the profiles presented in the current research may amplify the value of this information – for example, the average age of sexual debut (Somers & Ali, 2011) – by providing a link between behavioral data and the decision-making processes that inform the behaviors in question. In using latent profile analysis, the current study deviates from the methodologies previously used in

adolescent sex research and makes a significant contribution to the field by providing a framework that reflects degrees of readiness for sexual intercourse and contraceptive use among adolescents.

The identified taxonomy and associated sexual behaviors

The current study is a response to very recent work in the field of adolescent sex research, which calls for future work to consider the normative nature of emerging sexuality, and to conduct research using more sex-positive frameworks (Diamond & Savin-Williams, 2009; Halpern, 2010; Harden, 2014; Schalet, 2011; Tolman & McClelland, 2011). By adopting a sex-positive perspective, incorporating a cognitive behavioral theory (the Theory of Planned Behavior) (Ajzen, 1991), and using a person-centered approach, the current study achieves two primary objectives posed by previous research: (1) untangle sexual behaviors from deviant and criminal behaviors (substance use in adolescence is an illegal behavior in most states, as well as a non-normative behavior); and (2) better consider the complexity that underlies the decision to engage in sex behaviors and intercourse (Diamond & Savin-Williams, 2009; Halpern, 2010; Harden, 2014; Schalet, 2011; Tolman & McClelland, 2011). Although previous research conducted to determine the prevalence of various sexual behaviors is valuable, the type of information it can provide the field long-term is ultimately limited. By focusing only on epidemiological data (CDC, 2009), the field of adolescent sex research cannot answer vital questions about the processes adolescents undergo when faced with their emerging sexuality. The current study aptly captures some of the complexity and multidimensionality of sexual behaviors by examining readiness for sex and contraception and using this information to present a taxonomy comprised of the beliefs

that may lead adolescents to become sexually active, have sex with non-romantic partners, and use contraception.

Person-centered approaches are relatively new to the field of adolescent sex research, particularly in the case of research into the patterns that may emerge for adolescent sexual behaviors. While the current study found five profiles at each wave, and evidence for longitudinal associations between a given adolescent's profile for sexual readiness at wave 1, and his or her sexual behaviors at wave 2, other similar research has produced mixed findings. Multiple studies have successfully identified five profiles among their adolescent samples (Haydon, Herring, Prinstein, & Halpern, 2012; Sara A Vasilenko, Kugler, Butera, & Lanza, 2014), but one study identified only four profiles (Beadnell et al., 2005). Each study has used a variety of indicators for developing the latent classes. Beadnell and colleagues (2005) characterized these profiles in terms of the behavioral patterns of adolescents, for example: 1) Condom users, 2) One partner, 3) Two partners, and 4) Risk takers. Haydon, Herring, Prinstein and Halpern (2012) identified their classes based on which behavior an adolescent reported engaging in first (i.e., vaginal intercourse, oral, or anal sex) and the timing of behaviors as: 1) Vaginal initiators/multiple behaviors, 2) Dual initiators, 3) Vaginal initiators/single behaviors, 4) Postponers, and 5) Early and atypical initiators. Vasilenko, Kugler, Butera, and Lanza (2014) identified their classes on the basis of behaviors as: 1) Abstinent, 2) Oral only, 3) Low-risk, 4) Multi-partner normative, and 5) Multi-partner early, and included substance use and depression as predictors of class membership. Individually, each study adds validity to the idea that the field needs greater diversity in the methodology used to examine adolescents' sexual behaviors. In other words, epidemiological studies and

correlational studies provide valuable information, but the field also stands to benefit from research employing person-centered approaches. Together, these studies are able to create a more comprehensive list of factors, all of which may be influential. Adding the findings of the current study to this inventory of influences may further clarify answers to questions about adolescents' choices when they are faced with decisions about sexual activity.

In contrast to previous studies, however, the current study determined its classes through analyses of adolescents' attitudes and beliefs regarding intercourse and birth control, not by attempting to describe their reported behaviors. As a result, the names of the profiles in the current study reflect how adolescents in each profile may feel about sexual intercourse and contraception (e.g. "well-controlled"), their thoughts or family background regarding sex education (e.g. "conservatively-reared"), or their general behavioral inclinations for sex (e.g. "impulsive").

The current study is part of a growing trend of person-centered research in the field of adolescent sexuality. Although a few studies (Beadnell et al., 2005; Haydon, Herring, Prinstein, & Halpern, 2012; Vasilenko, Kugler, Butera, and Lanza, 2014) have recently taken this approach in efforts to capture the complexity of sexual behaviors, to the researcher's knowledge none have done so by examining attitudes and beliefs, or while excluding measures of sexual history (i.e., age of sexual debut, number of sexual partners, or previous diagnosis of sexually transmitted infections) as indicators. Other person-centered studies have used a variety of existing sexual behaviors as indicators, including: time of first vaginal, oral, and anal sex, spacing of behaviors, and sequence of behaviors (Haydon, Herring, Prinstein, & Halpern, 2012); risk-taking behaviors such as

condom use, number of partners, and frequency of sex (Beadnell et al., 2005); and time of first intercourse, condom use at first sex, non-relationship sex, number of past-year partners, and timing of oral sex (Vasilenko, Kugler, Butera, and Lanza, 2014). The current study differs from past work by not confounding other behaviors typically considered risky (e.g., substance use) in its derivation of profiles, and by not limiting indicators used in latent class analysis to behavioral data (e.g., existence of previous sexual activity or number of sexual partners) (Vasilenko, Kugler, Butera and Lanza, 2014; Beadnell et al., 2005). Instead, the current model maintains sexual activity as an outcome variable, and uses adolescents' attitudes, subjective norm, and perceived behavioral control as indicators. Given the utility of continuing research using a taxonomy that does not include sexual behaviors among its indicators, the current study is increasingly valuable.

Change in profile membership across waves.

The current study examined profiles at two waves to examine if the membership percentage for each profile changed as the adolescent population aged. Adolescence is a vulnerable period during which many navigate their emerging sexuality and learn to become sexual actors (Miller & Simon, 1980). This developmental period is also marked by the quest to balance new cognitive capabilities for executive functioning and rational thinking with appealing risk-taking behaviors such as sex (Dahl, 2004). As expected, profile memberships varied from wave 1 to wave 2, with some profiles gaining members and others losing members. Across waves 1 and 2, three profiles ("impulsive adolescents," "well-controlled adolescents," and "hasty adolescents") changed over time: from wave 1 to wave 2, those in these profiles developed more positive attitudes and

subjective norms for sex and birth control, and also had an increased likelihood to engage in sexual intercourse. These findings support research demonstrating that an increasing number of adolescents become sexually active from age 13 to 18 (CDC, 2009). Data from The Center for Disease Control and Prevention, CDC, indicates that sexual activity may commence prior to age 14 in approximately 6% of adolescents, and that 30% of adolescents aged 15-17 report engaging in sexual intercourse (CDC, 2009). Most impressively, this rate increases to 71% of adolescents aged 18-19 (CDC, 2009). The current study, combined with data on the incidence of sexual activity among adolescents, presents reasonable and compelling evidence that sexual debut, sexual activity, and contraceptive use are part of the transition from childhood to adulthood, and that they often occur during the adolescent period.

As the current study was able to consider the normative transition toward readiness for sexual intercourse and birth control through profile membership, it sets a foundation for continued work examining the established taxonomy through latent transition analysis. One previous study used this type of analysis to determine how adolescents transitioned between five classes. Lanza and Collins (2008) first used four indicators (number of dating partners in the past year, sex active status for the past year, number of sexual partners in the past year, and exposure to sexually transmitted diseases in the past year) in latent class analysis and established a five-class solution: 1) Non-daters, 2) Daters, 3) Monogamous, 4) Multi-partner safe, and 5) Multi-partner exposed. Their subsequent use of latent transition analysis, LTA, was founded on the assumption that dating behavior often predates sexual behaviors (Lanza & Collins, 2008). Through LTA, Lanza and Collins (2008) found that adolescents did in fact transition between

profiles from time 1 to time 3, particularly from non-daters to daters, and from daters to either monogamous or multi-partner safe.

Profile membership and Demographic Factors

The current study finds differences in profile membership across gender, race/ethnicity, and relationship status. As one might expect, the distribution of male and female adolescents among the different profiles was varied. Overall, the majority of males were members of the profile "hasty adolescents" at wave 1, and "well-controlled" at wave 2. It may be important to link this shift in membership among males to the fact that "hasty" adolescents did not emerge as a profile at wave 2. It may also be concluded that the shift in male membership (from a majority being "hasty" to a majority being "well-controlled") across waves 1 and 2 may also explain why more adolescents in the "well-controlled" profile at wave 2 identified as sexually active. The majority of females were characterized as "conservatively-reared" at wave 1, and "well-controlled" at wave 2. In further examining the shift in profile membership, it should also be noted that the profile of "well-controlled" sees an increase of approximately 14% from wave 1 to wave 2. Although the fifth profile at wave 1, "hasty adolescents," does not appear at wave 2, the corresponding fifth profile at wave 2, "unrestrained adolescents," diminishes in female membership size compared to "hasty" adolescents; these decreases appears significant, as nearly 15% of the female participants belonged to the "hasty" profile but only 2% belonged to the "unrestrained" profile.

Considering both genders, this shift in membership across waves appears consistent with results indicating that the "hasty" profile is the only one more likely than the reference profile to engage in sexual intercourse at wave 1, and that at wave 2,

adolescents in the "well-controlled" profile have become more likely to engage in sexual intercourse compared to the reference profile. Interestingly, previous research often finds contradictory evidence for gender differences in sexual behaviors. Although some empirical work finds that females are more likely to engage in intimate sexual behaviors earlier than males (Bersamin, Fisher, Walker, Hill, & Grube, 2007), other work finds that males are more likely than females to engage in sexual intercourse prior to age 13 and to engage in sexual intercourse in general (Cavazos-Rehg et al., 2009; Kann et al., 2014).

Profile membership also varied by race and ethnicity, as one would expect, given cultural differences in attitudes and approval of sexual behaviors. Of the sample of adolescents who indicated their race as white, most were characterized as "well-controlled" at both waves. The profile distribution for white adolescents is very different from the distribution seen in black, Asian, Hispanic, and mixed-race adolescents. Most black adolescents were characterized as members of the "hasty" profile at wave 1, but fit into the "well-controlled" profile at wave 2; adolescents in these two profiles had a greater likelihood of engaging in sexual intercourse compared to the profile of "impulsive adolescents." In contrast to black adolescents, the majority of both Asian and Hispanic adolescents were characterized as "conservatively-reared" at wave 1, and only Hispanic adolescents seemed to shift to the profile of "impulsive" adolescents at wave 2. The difference in within-race/ethnicity distribution among the profiles may be a result of differing attitudes among different cultures. For example, religiosity may play a role in how Hispanic adolescents perceive sexual intercourse, and the approval (or disapproval) parents have toward sexual behaviors at this age (Manlove, Terry-Humen, Ikramullah, & Moore, 2006; Rostosky, Wilcox, Wright, & Randall, 2004). Race and ethnic group

differences may also reflect larger trends in society (Rushton & Bogaert, 1988); some research indicates differences in sexual activity wherein African Americans (males and females) experience sexual debut at a significantly younger age compared to White, Hispanic and Asian adolescents (Cavazos-Rehg, et al., 2009). Cavazos-Rehg and colleagues (2009) also found that Hispanic males appear to the have the third highest probability for engaging in sexual intercourse by age 17 (African American males and females hold the first two highest probabilities) and that Asian Americans reported experiencing sexual debut later than all other groups. One potential explanation for the increased likelihood of early sexual activity among African American adolescents may be that they are more influenced by their peer group's composition and attitudes. Furstenberg, Morgan, Moore, and Peterson (1987) found that African American adolescents were more likely to report sexual intercourse if (1) their classroom composition was highly racially homogenous (80% of the classroom was also African American), and (2) they reported having sexually active peers. Their finding regarding classroom composition was particularly interesting given that the effect of a racially homogenous classroom trended in the opposite direction for white adolescents – that is, being in a classroom that was at least 80% white lowered the odds of a white adolescent being sexually active. As the mixed-race designation was defined by the current study to encompass adolescents who reported being of Hispanic origin and another race, or who selected multiple race categories, no other specific literature may be used to extrapolate why this group may switch profile membership across waves.

Relationship status, or the existence of a romantic relationship, may be viewed as a prerequisite for sexual activity among adolescents, in that these relationships may

create an expectation for sexual activity (B. C. Miller, McCoy, & Olson, 1986) and given that dating history is associated with sexual behaviors (Brooks-Gunn & Furstenberg Jr., 1989). Interestingly, however, the distribution of adolescents across profiles was similar regardless of relationship status for both waves 1 and 2.

Broader Impact and Implications

By examining what characterizes various profiles' sexual behaviors, the current study may expand the field's knowledge of factors that lead to sexual debut, non-monogamous sex, and consistent contraceptive use. The current study was innovative in its inclusion of a nationally representative sample of adolescents, and its use of planned behavior theory to inform hypotheses and analyses.

Furthermore, the current study was able to emphasize the complexity of adolescent sexuality by examining adolescents' reported attitudes, their perceptions of normalcy, and parental acceptance for these behaviors.

Following the paradigm often seen in academia wherein adolescents are identified as "at risk" for lower academic performance in reading or math based on various standardized test scores (Shinn, 2007), sex-education programs in the future may help students who, in early adolescence, exhibit beliefs that characterize "impulsive adolescents," "hasty adolescents," or "unrestrained adolescents" by providing them with more individualized or intervention-oriented instruction. It may be further hypothesized that adolescents who fit these profiles may benefit more from sex-education programs that challenge beliefs that underlie risk-promoting behaviors (e.g., sex without contraceptives) than from programs that present outcome-specific sex education (such as abstinence-only education). This hypothesis is supported by the current study's findings

that profiles with more positive attitudes and subjective norms for birth control may be more likely to use contraception consistently, and by previous research showing the low effectiveness of abstinence-only education (Kohler, Manhart, and Lafferty, 2008). Adolescents who report beliefs found in "impulsive adolescents," "hasty adolescents," or "unrestrained adolescents," and who may be less inclined to abstain or delay sexual intercourse, may benefit most from educational programs that emphasize the development of a positive sexual identity, communication skills that foster healthy conversation about sexuality, and a greater sense of self-efficacy for contraception, all of which have been shown to help delay sexual debut and promote condom use (Kirby et al., 2004; Tortolero et al., 2010). Such skills may serve as protective factors against typical high-risk behaviors such as promiscuity and unprotected sex. Existing research in the realm of program evaluation has found that programs that emphasize teaching strategies for maintaining boundaries and developing comfortable communication regarding one's sexuality help decrease the likelihood of early engagement in oral, anal, and vaginal sex (Tortolero, et al., 2010), and that programs that promote condom use, teach skills for declining unprotected sex, and address perceptions of risk help promote more consistent condom use among students (Kirby, et al., 2004). These findings are supported by the current study's findings that adolescents with greater perceived behavioral control may actually be using contraception more consistently than those with less perceived self-efficacy. Budgets for sex education programs have become increasingly constrained and dictated by the program's approach, with only abstinence-education programs qualifying for federal funds, while comprehensive sex education programs are left largely unfunded or funded only through community outreach (Kohler, Manhart, & Lafferty, 2008). This

disparity in funding only worsens the fact that abstinence-only education programs have been shown to have only minimal effects in delaying sexual debut or improving adolescents' condom use (Kirby, et al., 2004; Kohler, Manhart, Lafferty, 2008). Using the presented taxonomy to identify multiple focal points for comprehensive sex education may help to individualize programs so that they combine education and skill development in ways that enable more students to become sexually healthy adults (Gavin, Catalano, David-Ferdon, Gloppen, & Markham, 2010). For example, adolescents in the "impulsive" profile who reported relatively low levels of perceived behavioral control might receive individualized sex education aimed at fostering the knowledge and skills necessary to acquire birth control and use it with greatest efficacy.

Limitations

There are several limitations to the current study that should be considered. First, as a secondary-data analysis, the availability of items to measure constructs of attitude, subjective norm, and perceived behavioral control was limited. The current study assured adequate model fit for the items that were used to measure each construct, but could not fully replicate each in the way it would be done using the theory of planned behavior (Ajzen, 1991). For example, the measure of subjective norm in the current study was drawn only from parents' normative beliefs. Although prior research has shown that peers influence an adolescent's sexual behaviors (Ali & Dwyer, 2011; Sanderson & Cantor, 1995), and that peer subjective norm is associated with condom use (Basen-Engquist & Parcel, 1992), the available data did not include items that appropriately captured what normative beliefs for sexual intercourse and birth control might be from a peer's perspective. However, the current study was able to capture peer respect in its

measurement of attitudes toward sexual intercourse, and peer judgment as part of attitudes toward contraception. Despite this limitation, the current study examined a theoretically grounded model with good statistical fit, expanding research in the field of adolescent sex research and the use of these theories.

A second limitation is that the available sexual behaviors measured in the original Add Health study did not include precursory behaviors to vaginal intercourse at either wave 1 or 2. Prior research has shown that adolescents often engage in oral sex and/or anal sex prior to vaginal intercourse (Diamond, 2006). However, the current study was not able to measure how the established taxonomy could be used to predict the likelihood of adolescents engaging in these behaviors, either simultaneously or prior to actual intercourse. Fortunately, these behaviors were measured at the most recent wave of data, wave 4, so future studies may examine whether the taxonomy presented here is also useful in predicting the future likelihood of oral and anal sex in adolescents.

Thirdly, the current study conducted latent profile analysis at waves 1 and 2 in an effort to determine whether the number of profiles to emerge at each wave was similar or different, and whether any similarities could be drawn between the characterizations of profiles at each wave. The original dataset did not measure items used by the current study to create the five indicators for latent profile analysis consistently through waves 3 and 4. Although this was likely done to present participants at wave 3 with an age-appropriate survey, it limits the current study's ability to examine profiles for readiness through latent transition analysis, as this technique requires a minimum of three waves of data.

Future Directions

Even in light of these limitations, the current study was able to establish a taxonomy of profiles for adolescent sexual behaviors that was useful in indicating the likelihood of sexual intercourse, hooking-up behaviors, and contraceptive use for a nationally representative sample of adolescents. All analyses were conducted using design-based variable recommendations, including weight, stratification, and clustering variables. Furthermore, the current study makes contributions that may be used in future research to help further examine what beliefs may be encouraging adolescents to feel ready for engaging in sexual intercourse and employing contraception. Over time, education and intervention programs may leverage the results of the current study to improve their ability to guide the development of positive sexuality in adolescents, and promote life-long sexual health.

Life course theory (Elder Jr, Johnson, & Crosnoe, 2003) would also suggest that future research on adolescent sexual decision-making would benefit from adopting the perspective that sexual activity is an important part of transitioning between late adolescence and young adulthood. Future work may consider multi-group analysis to compare profile membership across early, middle, and late adolescence in both chronological age and pubertal growth, and across pubertal status. While the current study found support for the existence of a taxonomy of adolescent readiness for the general adolescent population, follow-up work might also examine whether there are any gender effects, or whether stratifying the sample by age leads to a clearer picture of adolescent profiles at various times. From this developmental and life course perspective, latent transition analysis may also help clarify the progression between profiles that occurs as an adolescent increases his or her personal agency for sexual activity (i.e.,

chooses to become sexually active). Such analyses may also elucidate reasons for within-gender and within-race/ethnicity differences in profile membership across waves. Broadly speaking, knowing the age at which adolescents begin to have sex, or specific behaviors they are engaging in, may not be as applicable to future research or sex education programs as a deeper understanding of why some adolescents decide they are ready for sex earlier than others regardless of their chronological age, and what has led them to make this decision.

The current study contributes to the field of adolescent sex research by introducing a theory-derived framework that could encompass the complexity of sexual behaviors. It also builds a foundation from which future research may take a more objective and normative approach to better understanding adolescent sexuality, sexual decision-making, and sexual communication. The presented taxonomy for readiness is an initial step toward viewing the decision to engage in sex prospectively from beliefs to behaviors. The current study is also the first of its kind to be conducted using a nationally representative sample of adolescents, and to focus on attitudes and beliefs about sex and birth control rather than behavioral correlates such as substance use or depression (Lanza & Collins, 2008; Tapert, Aarons, Sedlar, & Brown, 2001; Vasilenko, et al., 2014). Future research may continue to examine how the presented taxonomy changes at various life stages, adapts to romantic relationships, and could potentially be transmitted across generations through family sex education.

Appendix A: Figures and Tables

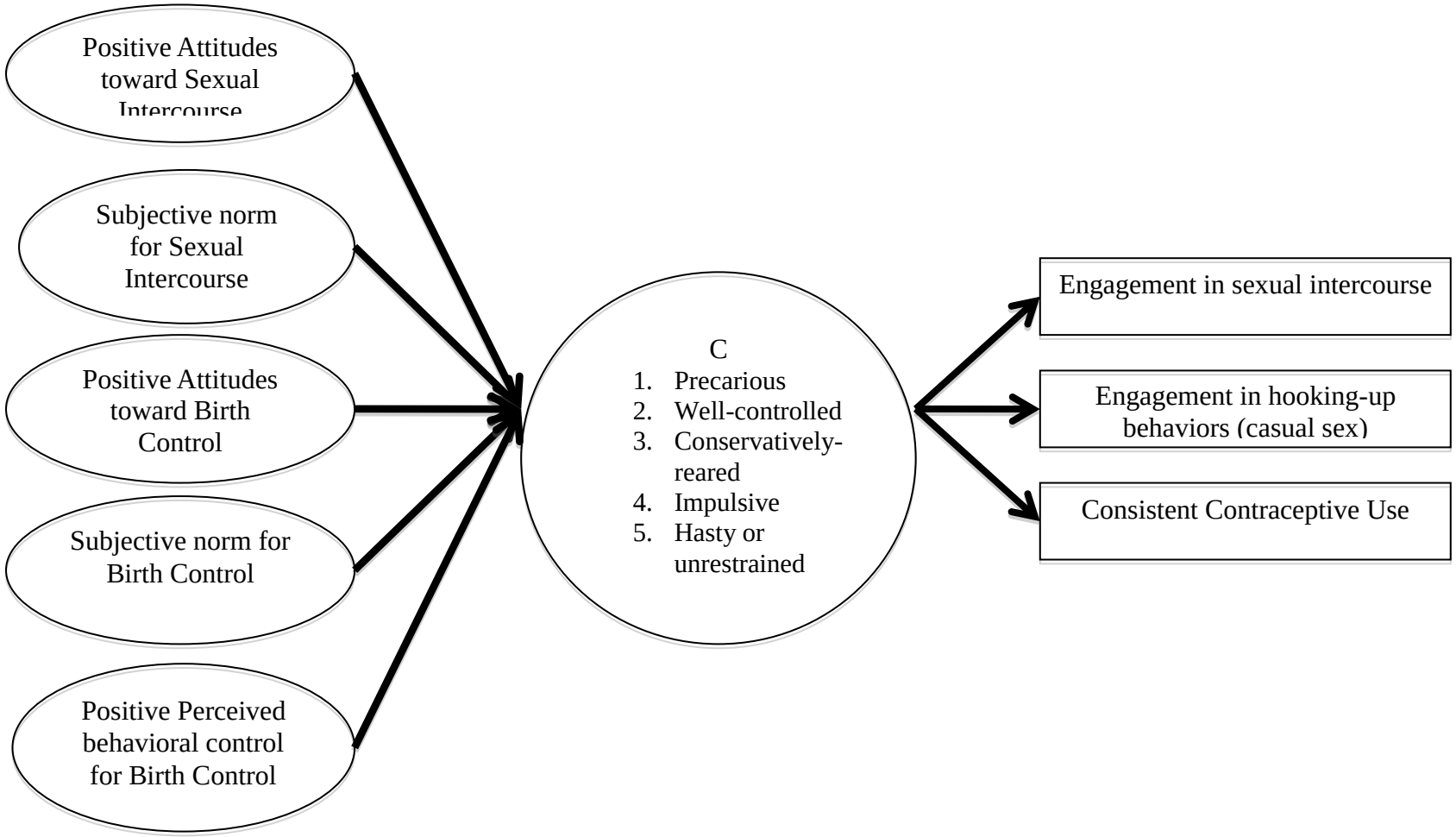

Figure 1. Complete analytical model. Aim 1 is illustrated in the pathways from the five indicators to the a priori profiles represented by "C". Aim 2 is illustrated in the pathways from the five a priori profiles to the three outcome variables.

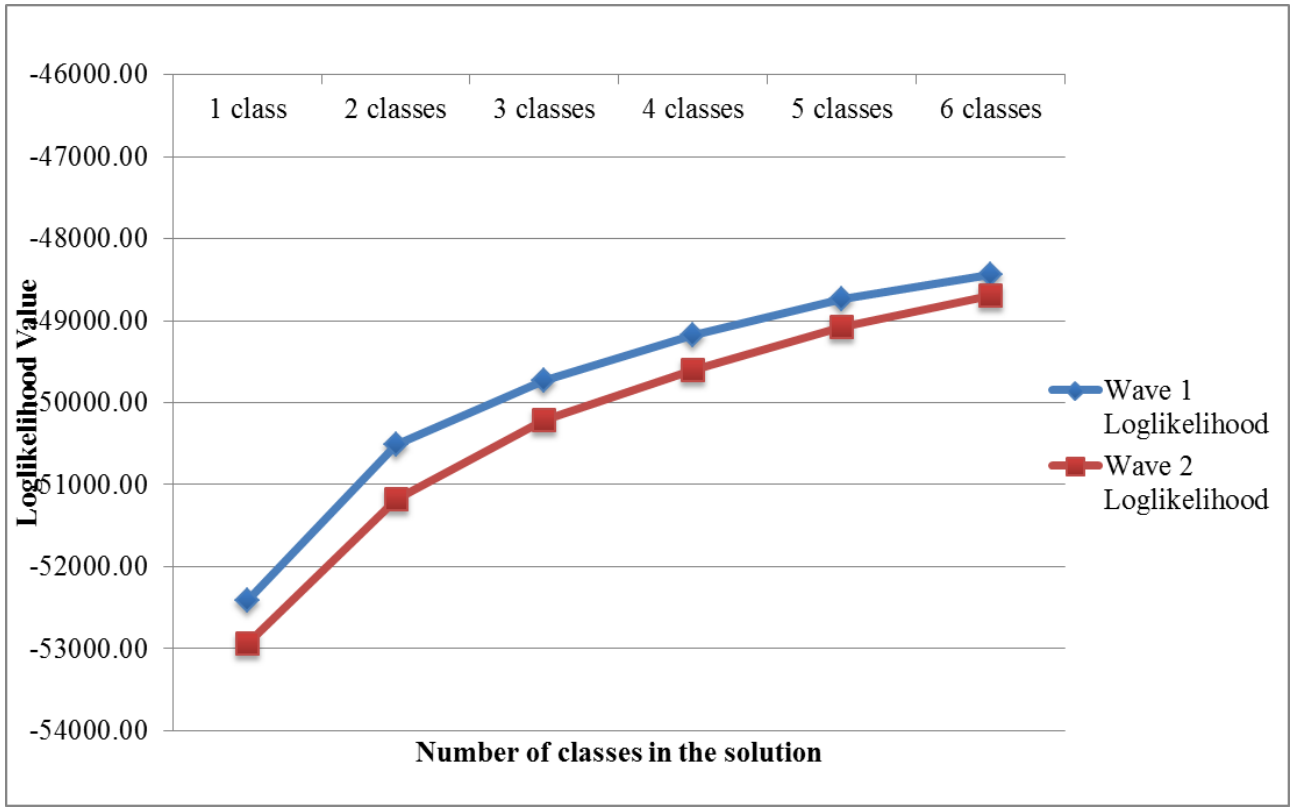

Figure 2. Loglikelihood values for latent profile analysis of waves 1 and 2.

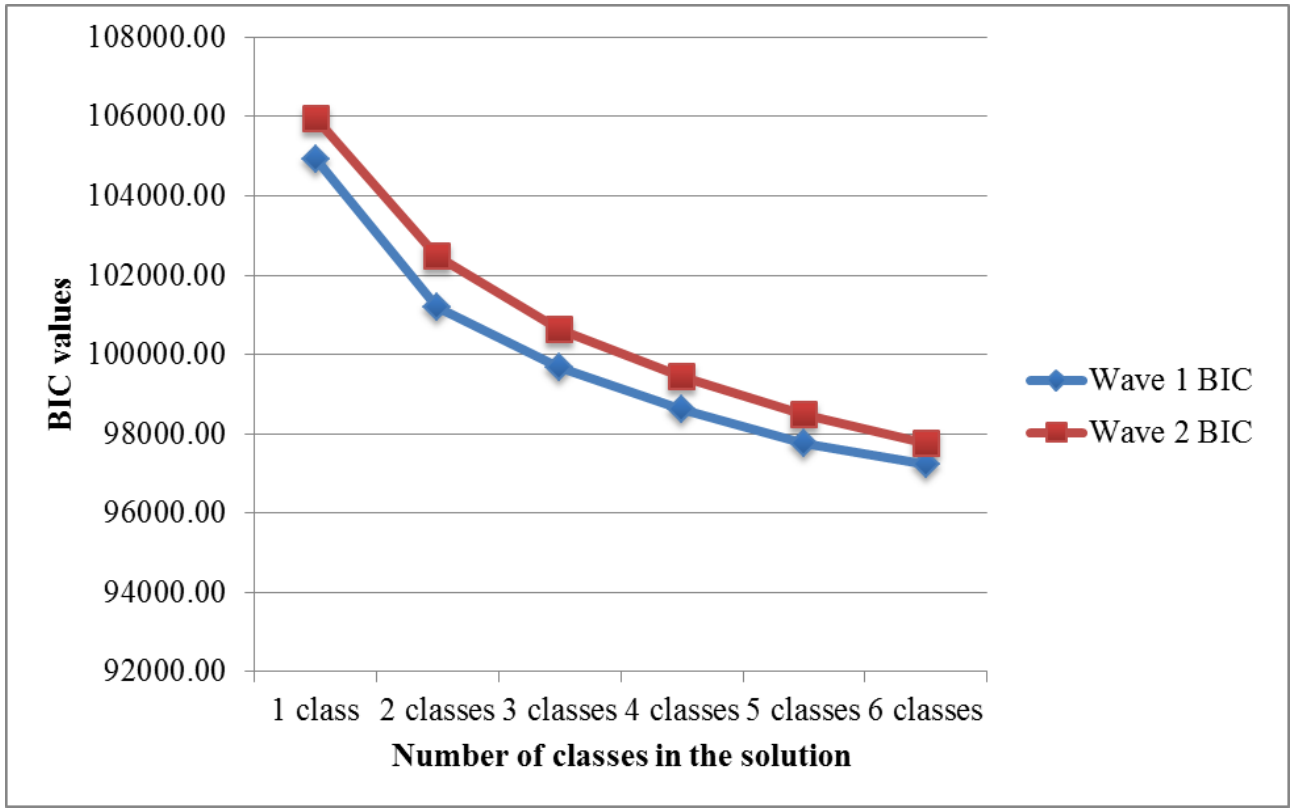

Figure 3. BIC values for latent profile analysis of waves 1 and 2.

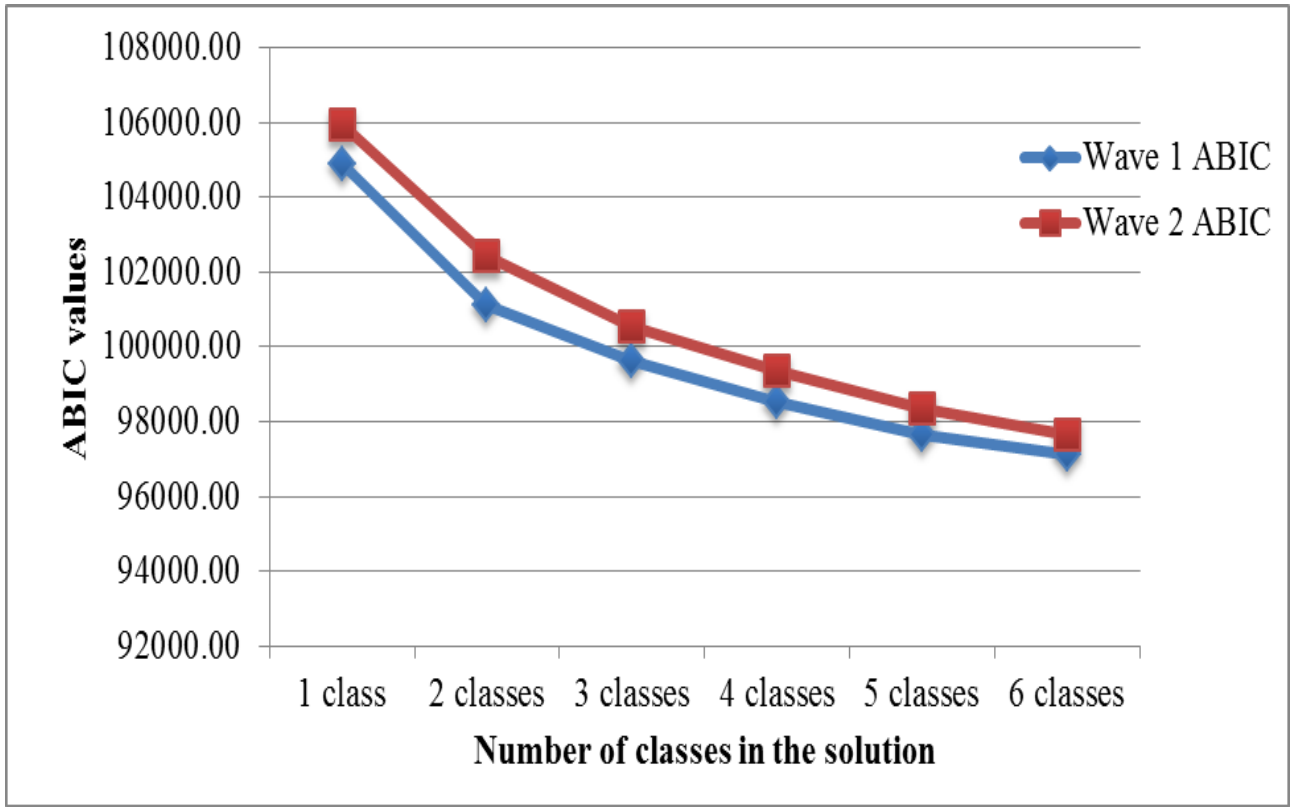

Figure 4. ABIC values for latent profile analysis of waves 1 and 2.

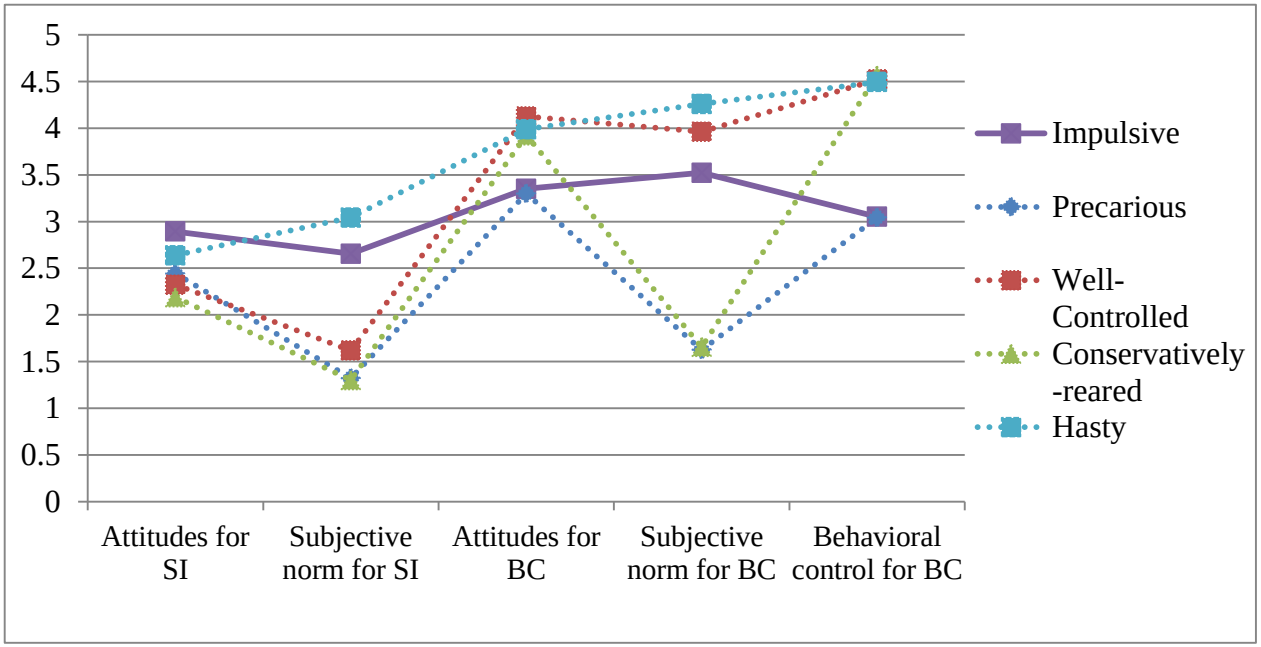

Figure 5. Impulsive Adolescents Profile summary at wave 1. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

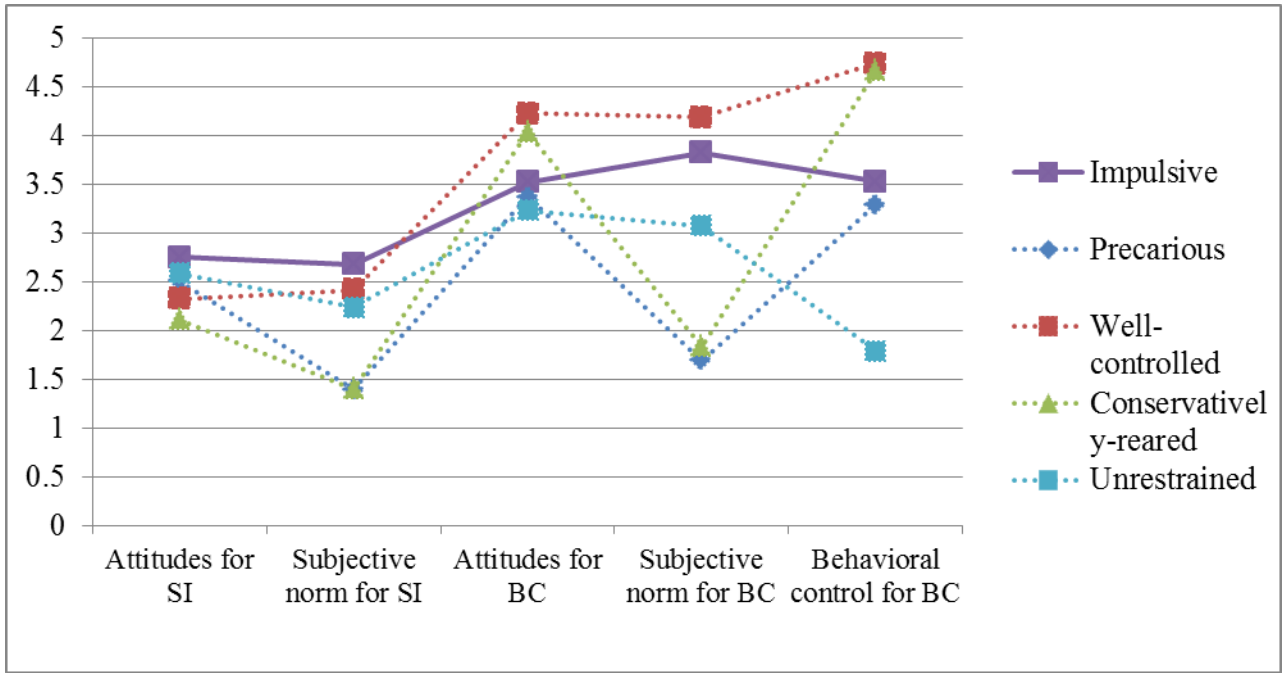

Figure 6. Impulsive Adolescents Profile summary at wave 2. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

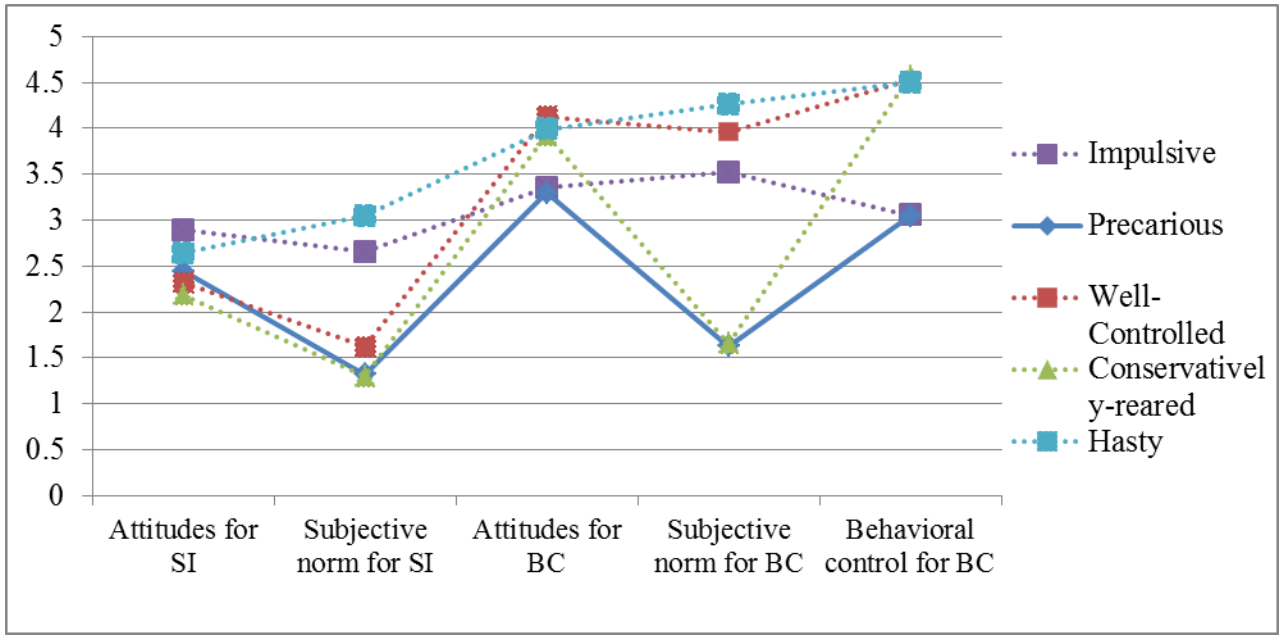

Figure 7. Precarious Adolescents Profile summary at wave 1. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

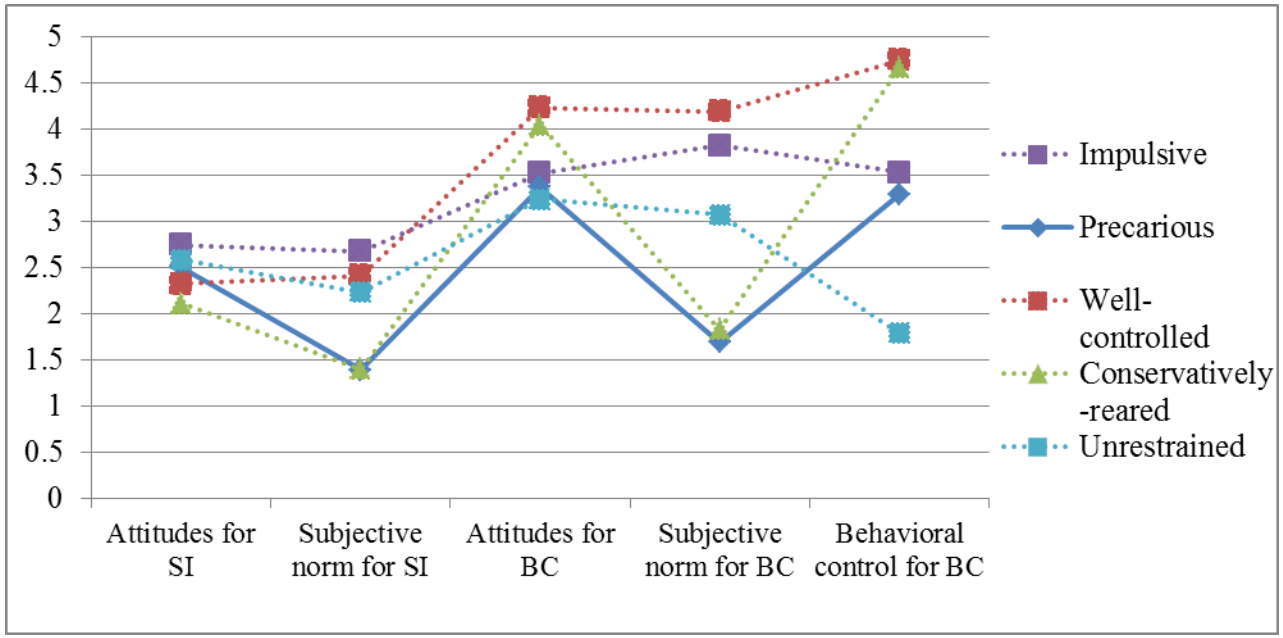

Figure 8. Precarious Adolescents Profile summary at wave 2. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

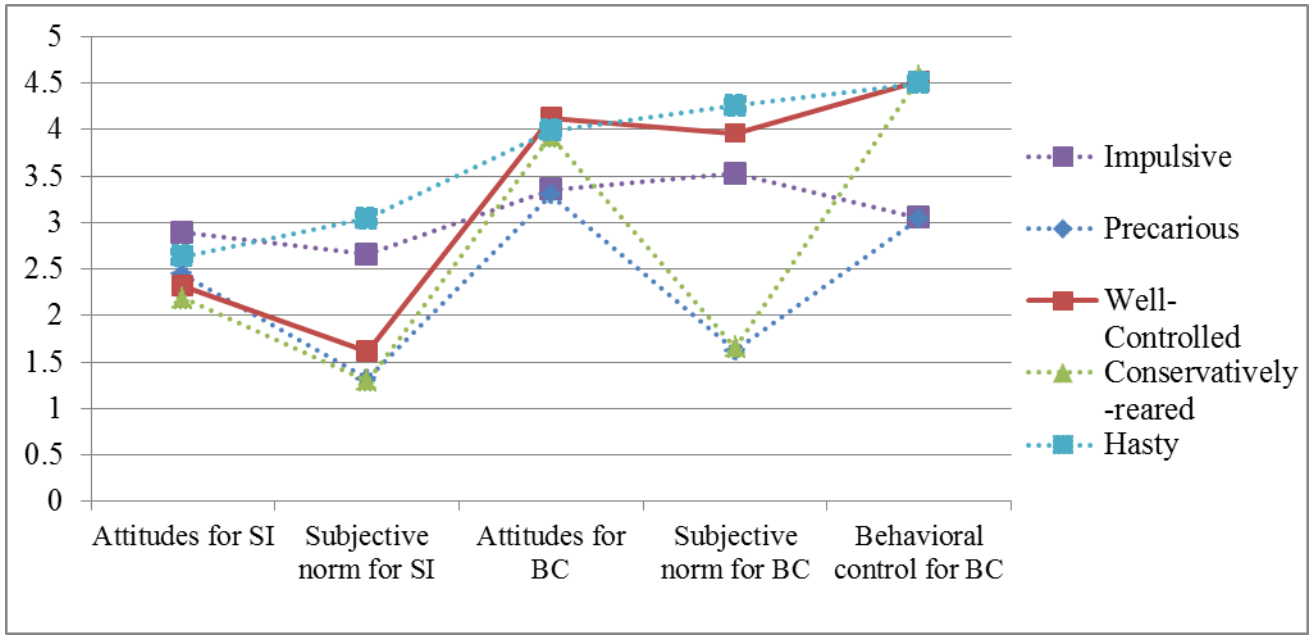

Figure 9. Well-Controlled Adolescents profile summary at wave 1. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

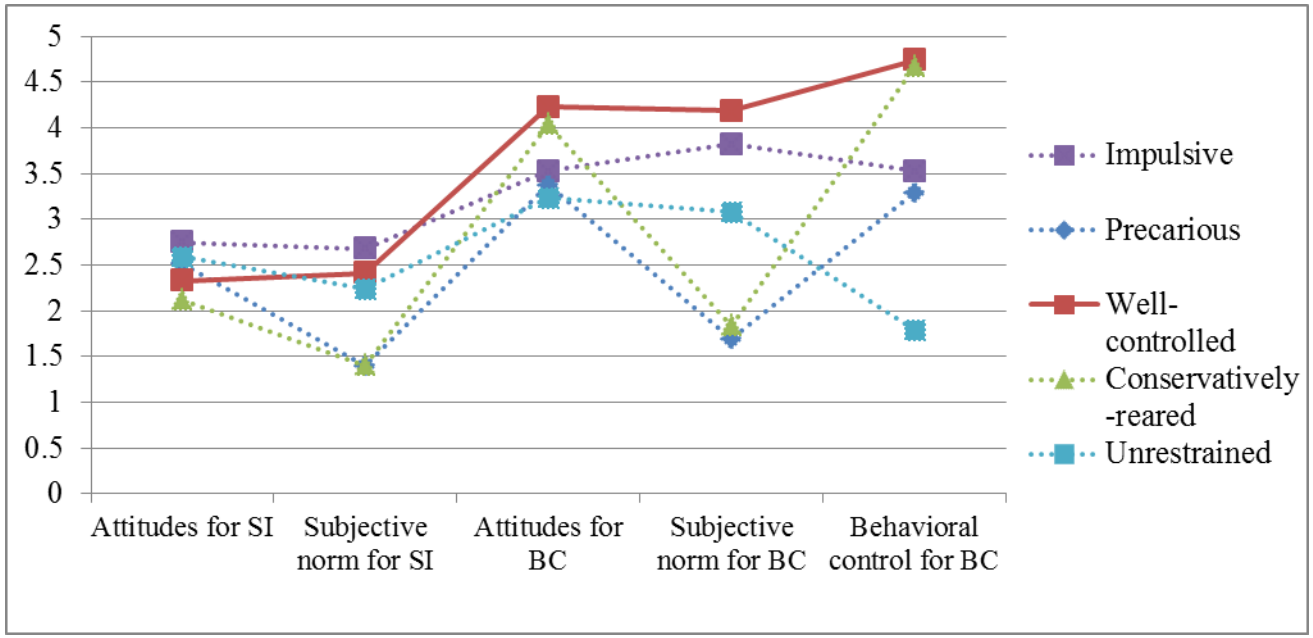

Figure 10. Well-Controlled Adolescents profile summary at wave 2. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

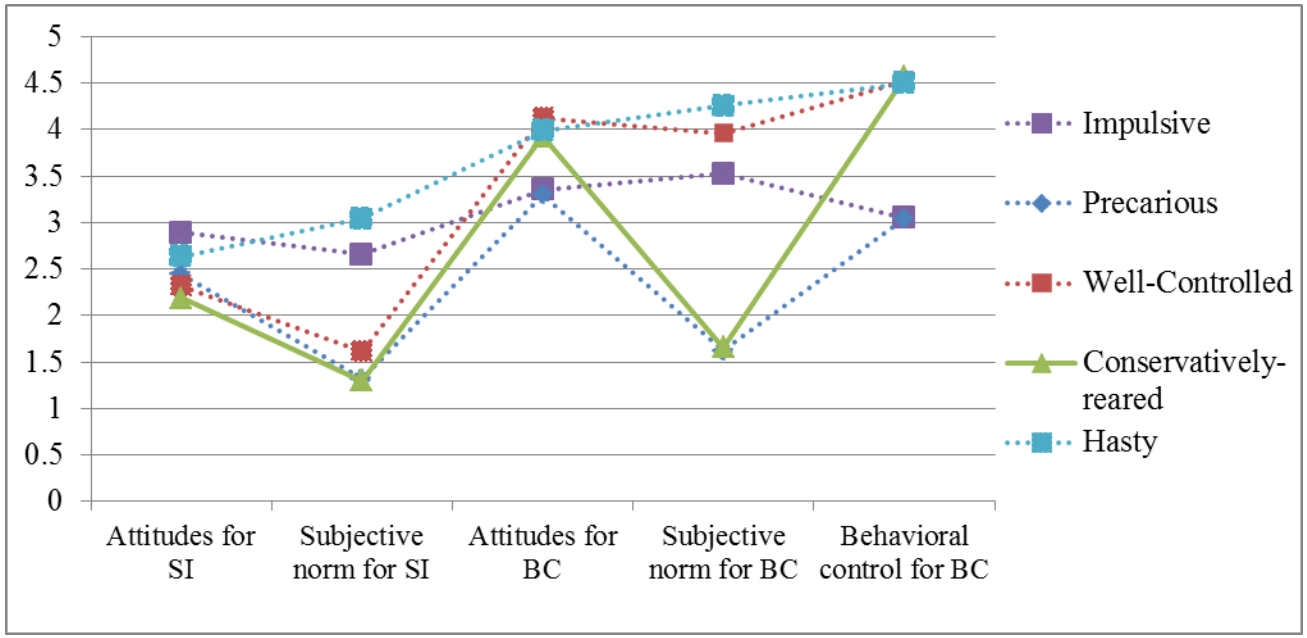

Figure 11. Conservatively-reared Adolescents profile summary at wave 1. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

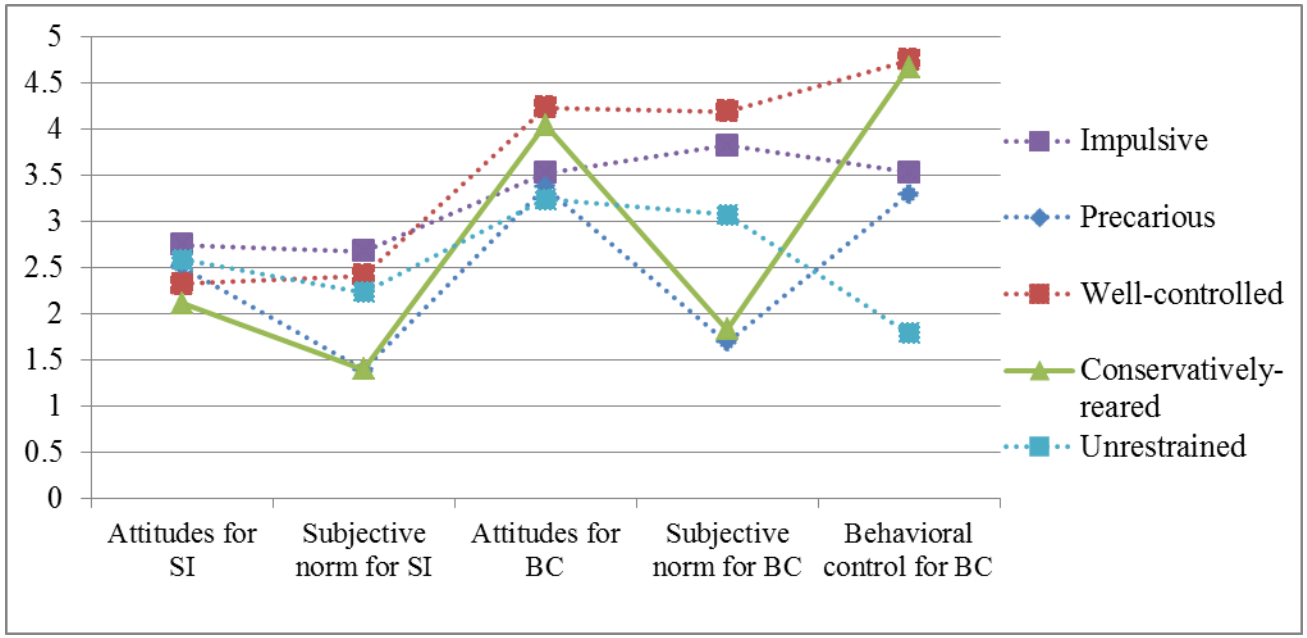

Figure 12. Conservatively-reared Adolescents profile summary at wave 2. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

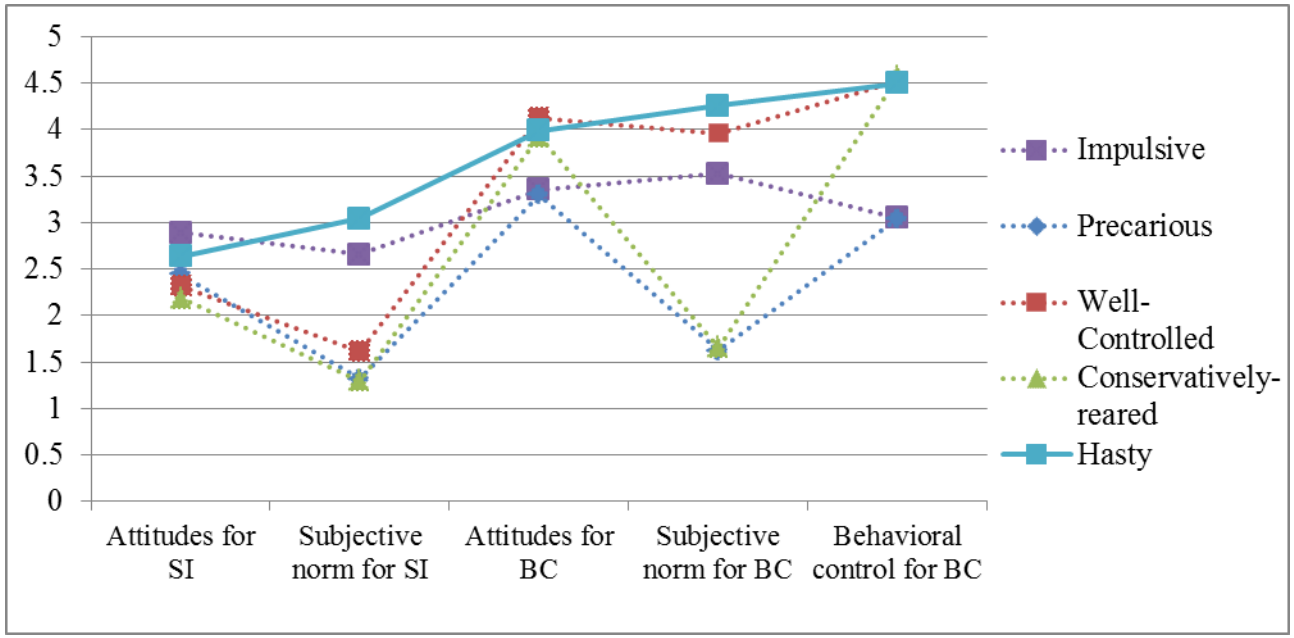

Figure 13. Hasty Adolescents profile summary at wave 1. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

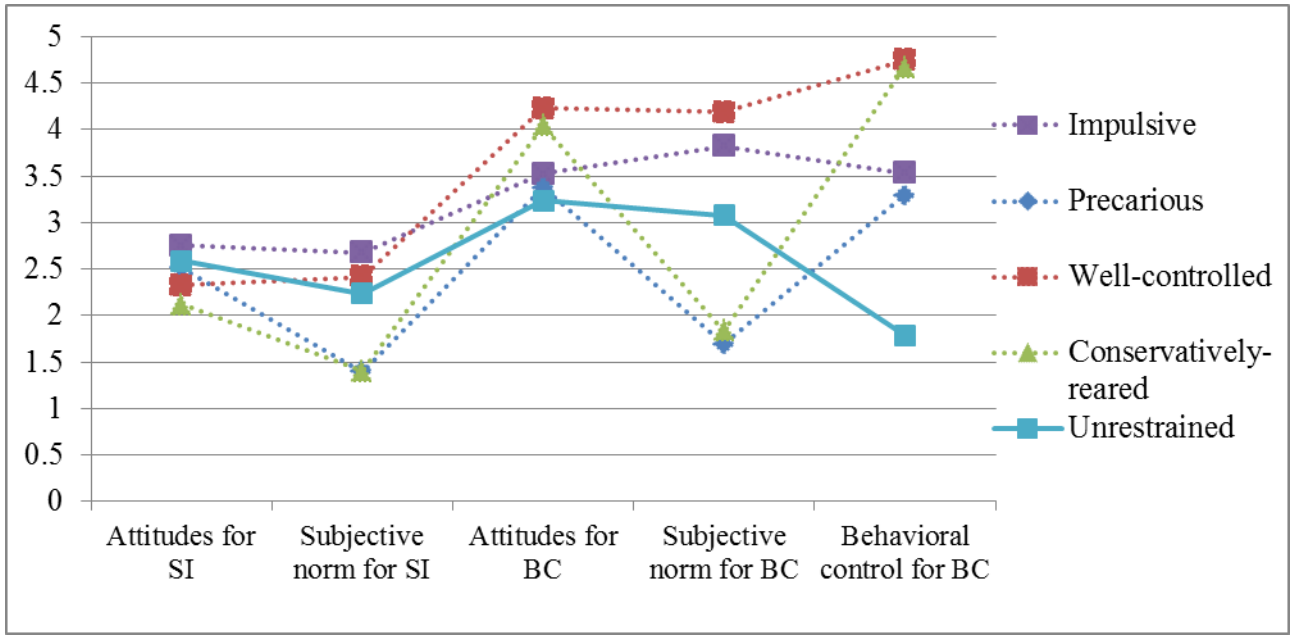

Figure 14. Unrestrained Adolescents profile summary at wave 2. Each profile resulting from latent profile analysis is shown with dotted lines and the profile of focus is shown with a solid line.

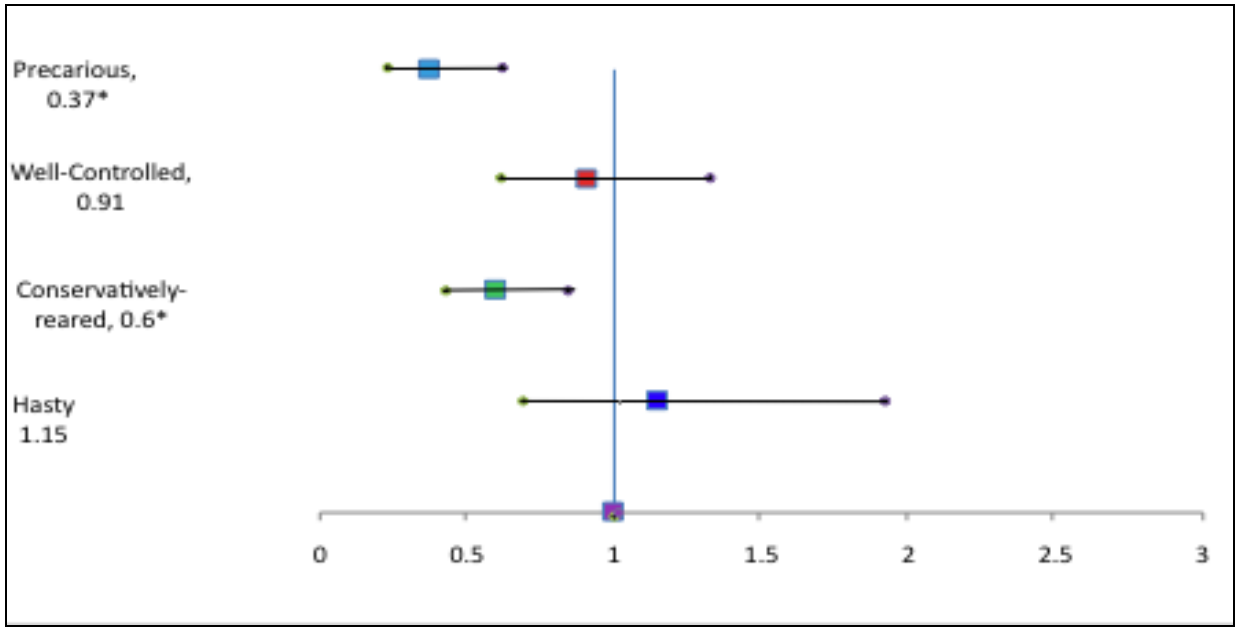

*Figure 15. Odds ratios for Sexual Intercourse in the longitudinal model. The longitudinal model examined wave 1 profiles and wave 2 sexual intercourse, and results are shown as the odds ratio estimate and confidence interval for engaging in sexual intercourse by profile. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05.*

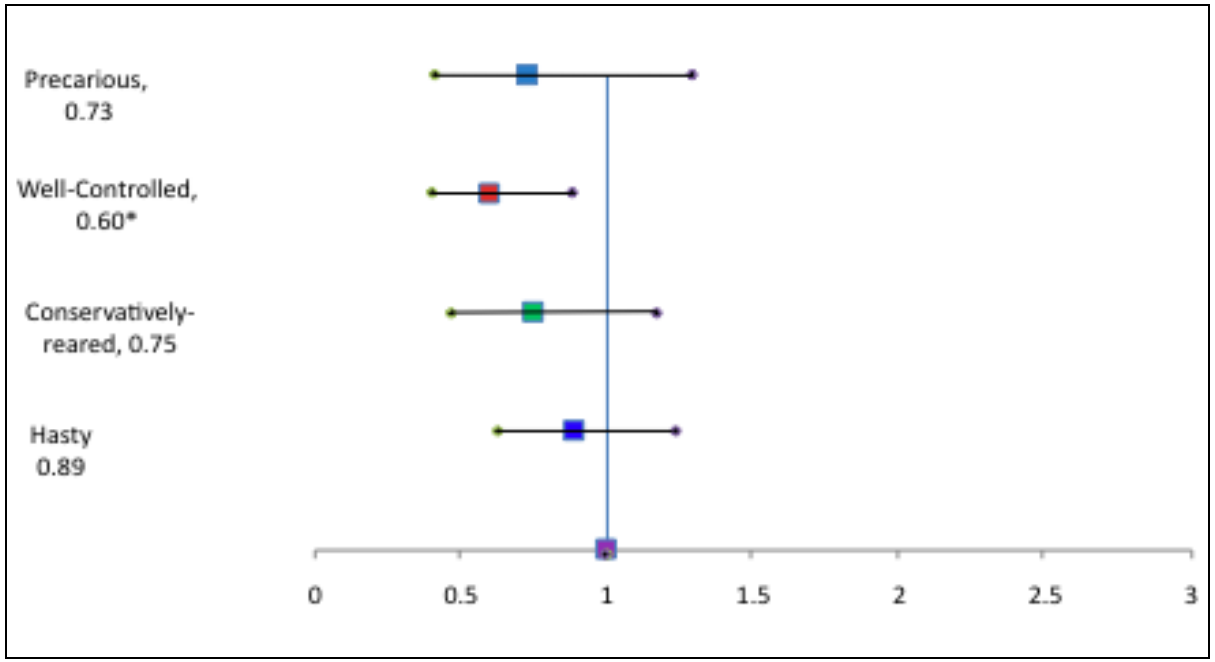

*Figure 16. Odds ratios for Hooking up in the longitudinal model. The longitudinal model examined wave 1 profiles and wave 2 hooking-up, and results are shown as the odds ratio estimate and confidence interval for engaging in hooking up (casual sex) by profile. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05*

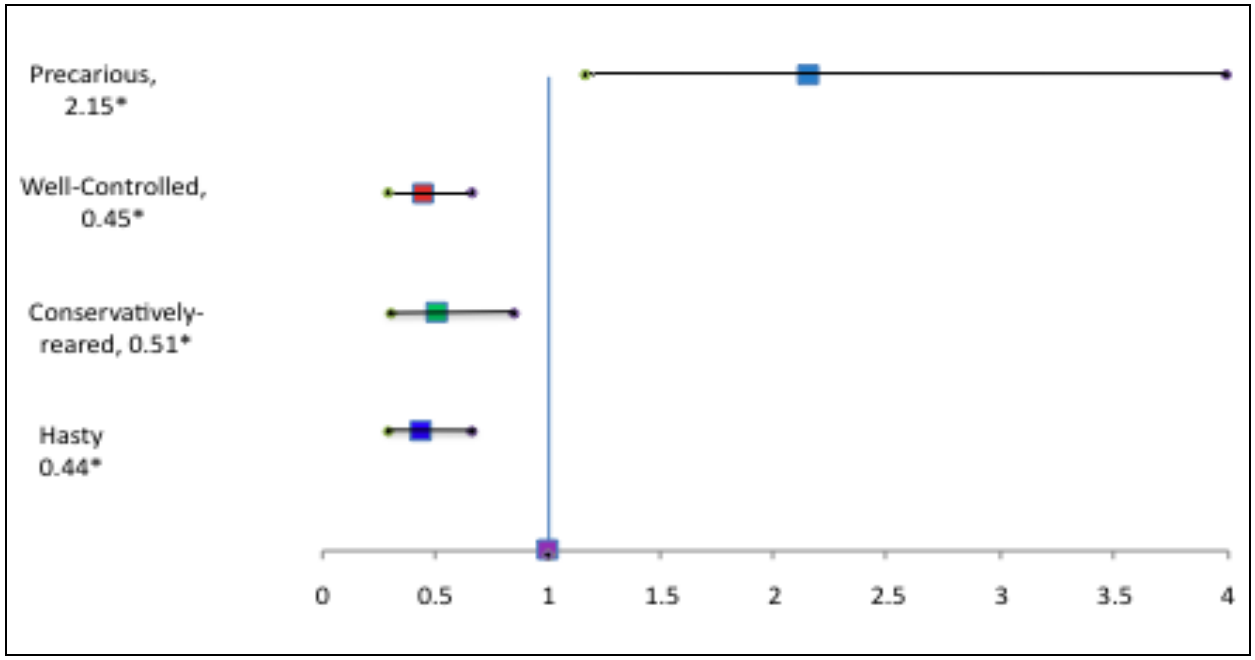

Figure 17. Odds ratios for consistent contraceptive use category “none” in the cross-sectional model at wave 1. The cross-sectional model at wave 1 examined wave 1 data only. Results are shown as the odds ratio estimate and confidence interval for consistent contraceptive use category "none" by profile. Participants were coded as responding “none” if they indicated not having used contraception at either first time of sex or most recent time of sex. The reference profile used is “impulsive adolescents.” Significance is noted *p <0.05.

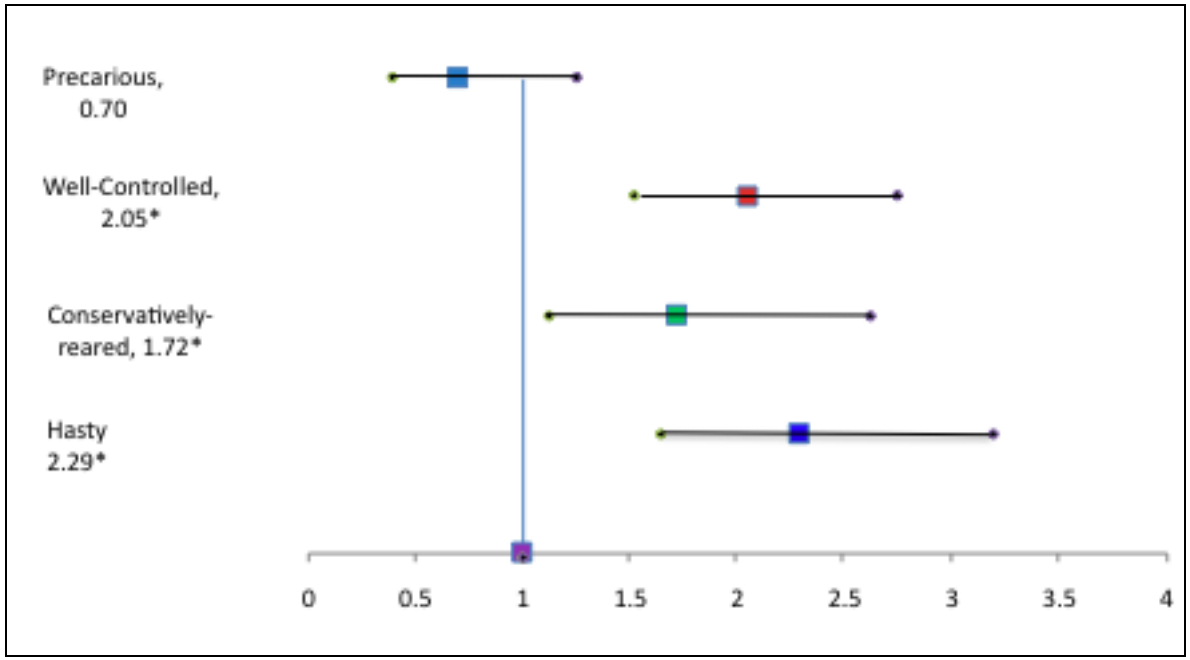

*Figure 18. Odds ratios for consistent contraceptive use category "both" in the cross-sectional model at wave 1. The cross-sectional model at wave 1 examined wave 1 data only. Results are shown as the odds ratio estimate and confidence interval for consistent contraceptive use category "both" by profile. Participants were coded as responding "both" if they indicated having used contraception at both first time of sex and most recent time of sex. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05.*

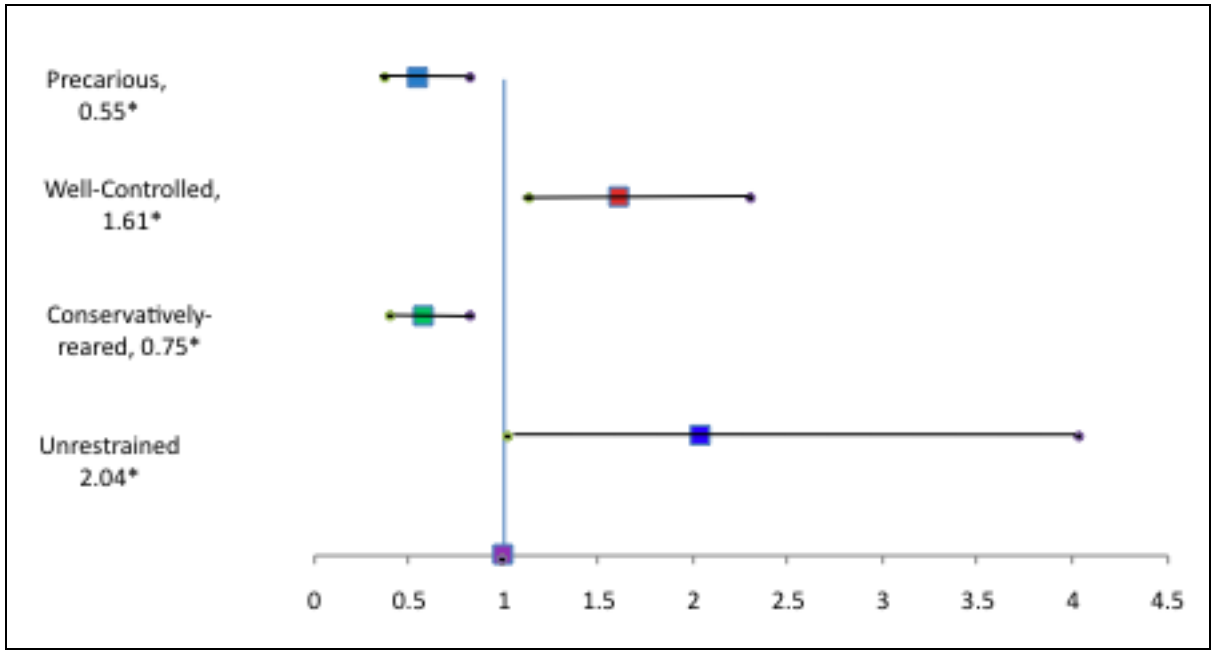

*Figure 19. Odds ratios for Sexual Intercourse in the cross-sectional model at wave 2. The cross-sectional model at wave 2 examined wave 2 data only. Results are shown as the odds ratio estimate and confidence interval for sexual intercourse by profile. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05.*

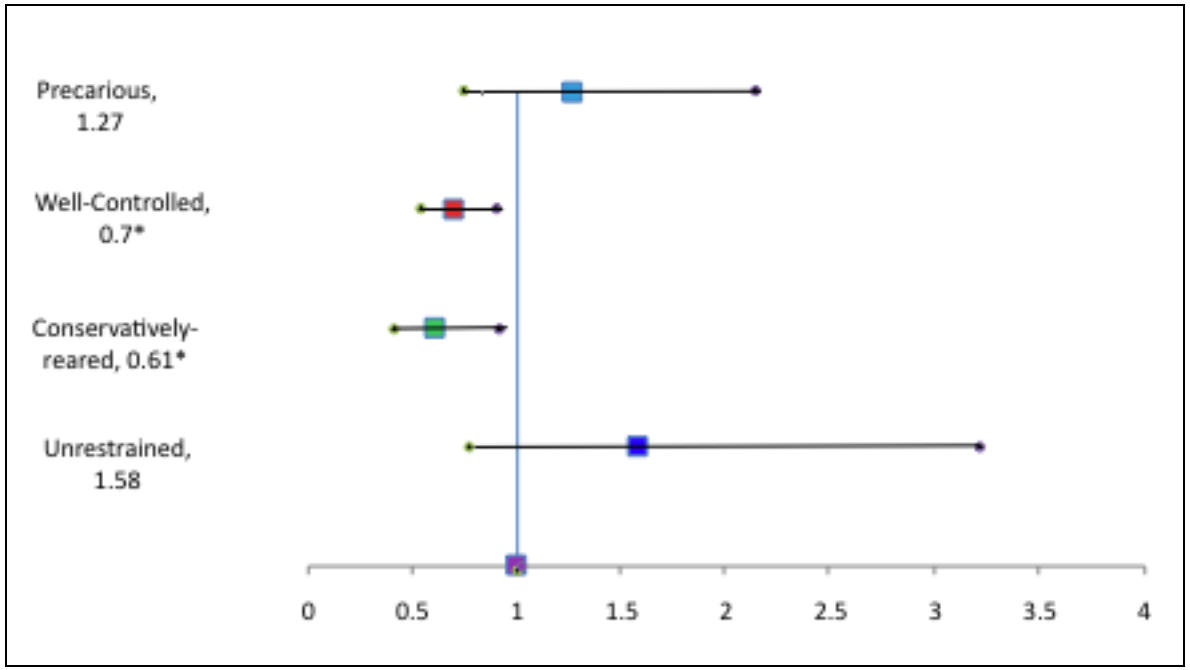

*Figure 20. Odds ratios for Hooking-up behaviors in the cross-sectional model at wave 2. The cross-sectional model at wave 2 examined wave 2 data only. Results are shown as the odds ratio estimate and confidence interval for hooking up (casual sex) by profile. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05.*

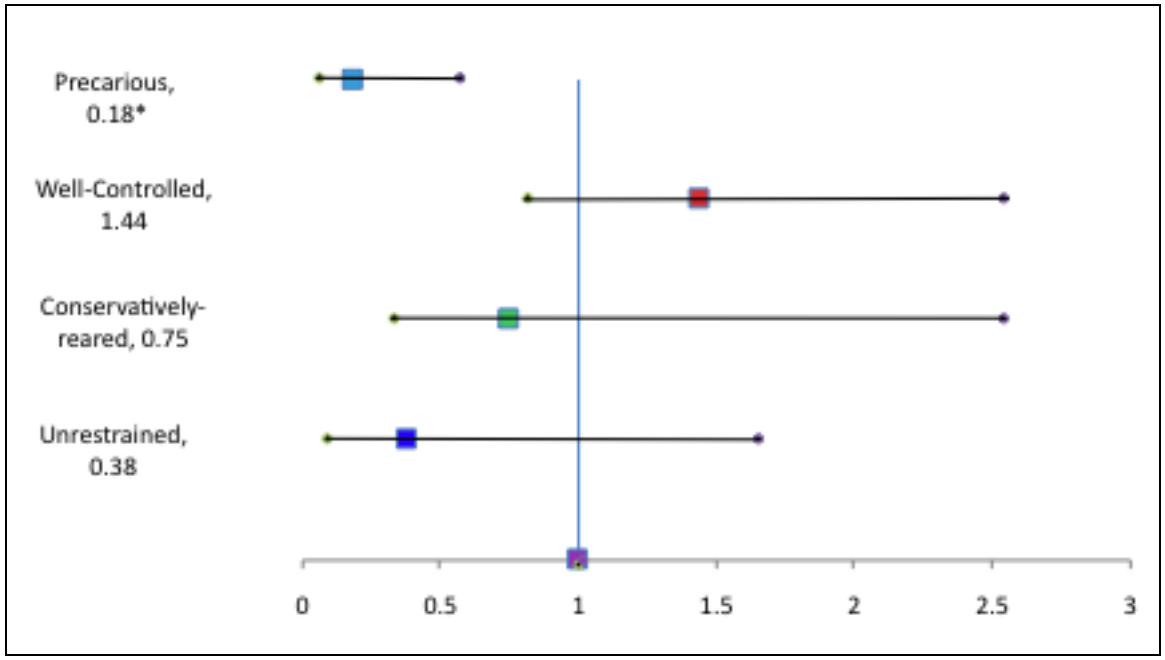

*Figure 21. Odds ratios for consistent contraceptive use category "both" in the cross-sectional model at wave 2. The cross-sectional model at wave 2 examined wave 2 data only. Results are shown as the odds ratio estimate and confidence interval for consistent contraceptive use category "both" by profile. Participants were coded as responding "both" if they indicated having used contraception at both first time of sex and most recent time of sex. The reference profile used is "impulsive adolescents." Significance is noted *p <0.05.*

Table 1.
Means and standard deviations

Measure	Possible score range	Wave 1		Wave 2	
		Mean	Standard deviation	Mean	Standard deviation
Age		15.89	0.02	16.80	0.03
Gender	1 (male)	1.50	0.01	1.50	0.01
	2 (female)				
Parent education	1 – 4	2.77	0.05	--	--
Parent occupational prestige	1 – 4	3.00	0.04	--	--
Income group	1 – 4	1.94	0.04	--	--
Intact family structure	0 (non-intact)	0.54	0.02	--	--
	1 (intact)				
Ever had sexual intercourse?	0 (No)	0.44	0.01	0.54	0.02
	1 (Yes)				
Ever had sex with a non-romantic partner?	0 (No)	0.29	0.01	0.21	0.01
	1 (Yes)				
No birth control used at either first time of sex or most recent time of sex	0 (No)	0.09	0.00	0.02	0.00
	1 (Yes)				
Birth control used only at the first time of sex, not most recent time of sex	0 (No)	0.05	0.00	0.00	0.00
	1 (Yes)				
Birth control used only at the most recent time of sex, not the first time of sex	0 (No)	0.06	0.00	0.1	0.1
	1 (Yes)				
Birth control used at both first time and most recent time of sex	0 (No)	0.22	0.01	0.08	0.00
	1 (Yes)				

Table 1. Continued
Means and standard deviations

		Wave 1		Wave 2	
Measure	Possible score range	Mean	Standard deviation	Mean	Standard deviation
Positive attitudes for sexual intercourse	1 – 5	2.44	0.02	2.39	0.02
Subjective norm for sexual intercourse	1 – 5	1.92	0.02	2.12	0.02
Positive attitudes for birth control	1 – 5	3.85	002	3.93	0.02
Subjective norm for birth control	1 – 5	3.06	0.05	3.28	0.04
Perceived behavioral control for birth control use	1 – 5	4.18	0.02	4.26	0.02

Notes: Means and standard deviations are shown for measures included in the analytical models at waves 1 and 2 accordingly. Covariates including parent education, occupational prestige, income, and family structure were drawn only from wave 1 data

Table 2.
Cronbach's Alphas and factor loadings for each indicator

Factor	Wave 1		Wave 2	
	Alpha	Loadings range	Alpha	Loadings range
Positive Attitudes for Sexual intercourse	0.71	0.53 – 0.75	0.73	0.58 – 0.76
Subjective norm for sexual intercourse	0.90	0.74 – 0.92	0.91	0.76 – 0.92
Positive Attitudes for birth control	0.83	0.45 – 0.78	0.86	0.45 – 0.84
Subjective norm for birth control	0.90	0.88 – 0.91	0.88	0.87 – 0.90
Perceived behavioral control for birth control use	0.63	0.53 – 0.69	0.68	0.60 – 0.70

Table 3.
Correlations of indicators used in the cross-sectional model at wave 1

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Positive Attitudes for Sexual intercourse	--																		
2. Subjective norm for sexual intercourse	0.25 **	--																	
3. Positive Attitudes for birth control	-0.23 **	-0.04 *	--																
4. Subjective norm for birth control	0.15 **	0.52 **	0.17 **	--															
5. Perceived behavioral control for birth control use	-0.15 **	-0.06 **	0.32 **	0.09 **	--														
6. Engagement in sexual intercourse (sex-active status)	0.14 **	0.35 **	-0.00	0.29 **	-0.00	--													
7. Engagement in hooking up (casual sex)	0.15 **	0.29 **	-0.03 *	0.22 **	-0.04 *	0.55 **	--												
8. Consistent contraceptive use category “none”	0.06 **	0.10 **	-0.13 **	0.06 **	-0.14 **	0.34 **	0.22 **	--											

Table 3. Continued

Correlations of indicators used in the cross-sectional model at wave 1

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
9. Consistent contraceptive use category "first"	0.01	0.09 **	-0.04 *	0.08 **	-0.02	0.28 **	0.15 **	-0.07 **	--										
10. Consistent contraceptive use category "most"	0.06 **	0.12 **	-0.02	0.11 **	-0.02	0.29 **	0.21 **	-0.08 **	-0.06 **	--									
11. Consistent contraceptive use category "both"	0.09 **	0.23 **	0.12 **	0.20 **	0.11 **	0.61 **	0.31 **	-0.16 **	-0.13 **	-0.13 **	--								
12. Age	0.00	0.16 **	0.03 *	0.12 **	0.02	0.19 **	0.14 **	0.06 **	0.07 **	0.08 **	0.10 **	--							
13. Gender	-0.40 **	-0.26 **	0.15 **	0.22 **	0.13 **	-0.02 *	-0.09 **	0.01	0.06 **	-0.03 *	-0.04 *	-0.03 *	--						
14. Race/ Ethnicity	0.01	0.04 *	-0.15 **	-0.05 **	-0.07 **	0.01	-0.01	0.03 *	0.02 *	0.01	-0.03 *	0.02 *	-0.00	--					
15. Parent education	-0.05 **	-0.13 **	0.13 **	-0.02	0.08 **	-0.11 **	-0.07 **	-0.10 **	-0.04 *	-0.03 *	-0.03 *	-0.01	-0.04 *	-0.21 **	--				
16. Parent occupational prestige	-0.04 **	-0.11 **	0.12 **	-0.01	0.07 **	-0.10 **	-0.05 **	-0.07 **	-0.03 *	-0.02	-0.04 *	0.02	-0.02	-0.16 **	0.53 **	--			
17. Income	-0.05 **	-0.12 **	0.11 **	-0.04 *	0.05 **	-0.10 **	-0.06 **	-0.06 **	-0.06 **	-0.03 *	-0.02	-0.00	-0.01	-0.20 **	0.44 **	0.44 **	--		
18. Family Structure	-0.06 **	-0.21 **	-0.01	-0.18 **	-0.01	-0.19 **	-0.15 **	-0.07 **	-0.06 **	-0.06 **	-0.11 **	-0.02	-0.01	-0.03 *	0.14 **	0.19 **	0.30 **	--	
19. Relationship Status	0.02 *	0.03 *	-0.01	0.01	-0.02 *	0.04 **	0.03 *	0.01	0.01	0.01	0.04 *	-0.00	-0.04 *	0.01	0.01	0.01	-0.01	-0.01	--

Note: Correlations between indicators at wave 1. Significance is noted * p <0.05, ** p < 0.001

Table 4.
Correlations of indicators used in the cross-sectional model at wave 2

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Positive Attitudes for Sexual intercourse	--																		
2. Subjective norm for sexual intercourse	0.22 **	--																	
3. Positive Attitudes for birth control	-0.29 **	-0.06 **	--																
4. Subjective norm for birth control	0.09 **	0.51 **	0.18 **	--															
5. Perceived behavioral control for birth control use	-0.21 **	-0.63 **	0.39 **	0.11 **	--														
6. Engagement in sexual intercourse (sex-active status)	0.10 **	0.34 **	-0.04 **	0.25 **	0.00	--													
7. Engagement in hooking up (casual sex)	0.11 **	0.22 **	-0.07 **	0.17 **	-0.05 **	0.37 **	--												

Table 4. Continued

Correlations of indicators used in the cross-sectional model at wave 2

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
8. Consistent contraceptive use category “none”	0.03 *	0.02 *	-0.09 **	0.01	-0.06 **	0.14 **	0.05 **	--											
9. Consistent contraceptive use category “first”	0.01	0.04 *	-0.04 *	0.02	-0.01	0.11 **	0.01	-0.02	--										
10. Consistent contraceptive use category “most”	0.01	0.02	-0.00	0.00	-0.01	0.11 **	0.03	-0.02	-0.01	--									
11. Consistent contraceptive use category “both”	0.00	0.03 *	0.09 **	0.06 **	0.06 *	0.27 **	0.00	-0.04 *	-0.03 *	-0.03 *	--								
12. Age	0.04	0.18 **	0.01	0.11 **	0.00	0.17 **	0.06 **	-0.00	-0.01	-0.00	-0.00	---							
13. Gender	-0.41 **	-0.24 **	0.18 **	-0.20 **	0.18 **	0.01	-0.09 **	-0.00	0.01	0.00	0.02 *	-0.03 *	--						
14. Race/Ethnicity	0.03 *	002	-0.14 **	-0.06 **	-0.10 **	0.00	-0.00	0.04 *	0.00	0.00	-0.03 *	0.02 *	-0.00	--					
15. Parent education	-0.04 *	-0.13 **	0.12 **	-003 *	0.06 **	-0.11 **	-0.04 *	-0.02 *	-0.02 *	-0.01	0.00	-0.01	-0.04 *	-0.21 **	--				
16. Parent occupational prestige	-0.06 **	-0.11 **	0,12 **	-0.02	0,05 **	-0.08 **	-0.03 *	-0.02	-0.01	-0.02	0.00	-0.02	-0.02	-0.16 **	0.53 **	--			
17. Income	-0.06 **	-0.12 **	0.12 **	-0.05 *	0.08 **	-0.09 **	-0.05 *	-0.01	-0.01	-0.02	0.02	-0.00	-0.01	-0.20 **	0.44 **	0.44 **	--		
18. Family Structure	-0.06 **	-0.23 **	0.02	-0.19 **	-0.02 *	-0.18 **	-0.10 **	-0.02	-0.01	-0.00	-0.02	-0.02	-0.01	-0.03 *	0.14 **	0.30 **	0.30 **	--	

Table 4. Continued

Correlations of indicators used in the cross-sectional model at wave 2

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
19. Relationship Status	0.00	-0.01	0.01	0.01	0.01	0.04 **	0.02 *	-0.00	-0.01	0.02	0.02	0.00	0.01	-0.04 **	0.01	0.02	-0.00	-0.00	--

Note: Correlations between indicators at wave 1. Significance is noted * p <0.05, ** p < 0.001

Table 5.

Latent Profile Analysis at Wave 1: Enumeration table for the examined solutions

Wave 1 Fit Indices	1 Class	2 Classes	3 Classes	4 Classes	**5 Classes**	6 Classes
Loglikelihood value	-52417.64	-50515.93	-49735.62	-49181.52	**-48732.59**	-48437.27
[k - (k-1)] loglikelihood	--	1901.71	780.31	554.10	**448.93**	295.32
BIC	104925.30	101175.89	99669.30	98615.11	**97771.27**	97234.63
ABIC	104893.52	101125.05	99599.39	98526.13	**97663.22**	97107.52
Entropy	--	0.74	0.71	0.73	**0.72**	0.75
LMR pvalue	--	p=0.000	p=0.0000	p=0.1008	**p=0.0349**	p= 0.3637
Distribution (% in each class)	100%	42-58	40-30-31	13-23-30-34	**12-28-27-12-21**	9-22-19-28-3-19

Note: The five-class solution (bolded) was selected as the best fitting model. The distribution information represents the percent membership by class for each model.

Table 6.

Latent Profile Analysis at Wave 2: Enumeration table for the examined solutions

Wave 1 Fit Indices	1 Class	2 Classes	3 Classes	4 Classes	**5 Classes**	6 Classes
Loglikelihood value	-52935.32	-51175.08	-50211.78	-49601.68	**-49084.81**	-48696.34
[k - (k-1)] loglikelihood	--	1760.25	963.29	610.10	**516.88**	388.46
BIC	105960.69	102494.22	100621.66	99455.48	**98475.76**	97752.86
ABIC	105928.91	102443.38	100551.75	99366.50	**98367.71**	97625.74
Entropy	--	0.75	0.76	0.78	**0.81**	0.76
LMR pvalue	--	p=0.000	p=0.0062	p=0.0038	**p=0.01**	p= 0.0014
Distribution (% in each class)	100%	34-66	30-17-54	28-47-06-18	**9-3-24-21-44**	9-22-18-28-3-19

Note: The five-class solution (bolded) was selected as the best fitting model. The distribution information represents the percent membership by class for each model.

Table 7.

Mean levels of indicators by sample and profiles at wave 1

Indicator	I	P	WC	CR	H	*F value*	*p*	Significant Contrasts
Positive attitudes for sexual intercourse	2.9 (0.04)	2.44 (0.06)	2.32 (0.03)	2.19 (0.05)	2.64 (0.04)	16492.4	<.0001	CR < WC < P < H < I
Subjective norm for sexual intercourse	2.66 (0.08)	1.32 (0.04)	1.62 (0.03)	1.30 (0.03)	3.04 (0.04)	27688.6	<.0001	CR < P < WC < I < H
Positive attitudes for birth control	3.35 (0.06)	3.3 (0.06)	4.13 (0.03)	3.93 (0.05)	3.99 (0.04)	46463.7	<.0001	P < I < CR < H < WC
Subjective norm for birth control	3.52 (0.11)	1.63 (0.07)	3.96 (0.05)	1.66 (0.04)	4.26 (0.05)	30082.8	<.0001	P < CR < I < WC < H
Perceived behavioral control for birth control use	3.05 (0.09)	3.04 (0.08)	4.52 (0.03)	4.57 (0.03)	4.49 (0.04)	103809.00	<.0001	P < I < H < WC < CR

Note: The overall sample means are compared to the five profiles of sexual behaviors for adolescents at wave 1. Standard deviations are shown within parenthesis. Profile titles are abbreviated as follows: I, Impulsive adolescents, P, precarious adolescents, WC, well-controlled adolescents, CR, conservatively-reared adolescents, and H, hasty adolescents. Analysis of contrasts was conducted to compare all profiles with each other individually. Significant contrasts are displayed to compare means found to be statistically significantly different from other means.

Table 8.

Mean levels of indicators by sample and profiles at wave 2

Indicator	I	P	WC	CR	UN	*F value*	*p*	Significant Contrasts
Positive attitudes for sexual intercourse	2.75 (0.03)	2.51 (0.06)	2.33 (0.02)	2.12 (0.04)	2.59 (0.10)	16366.0	<.0001	CR < WC < P < UN < I
Subjective norm for sexual intercourse	2.68 (0.04)	1.4 (0.04)	2.41 (0.03)	1.40 (0.02)	2.24 (0.11)	13983.20	<.0001	P < CR < UN < WC < I
Positive attitudes for birth control	3.52 (0.03)	3.4 (0.07)	4.23 (0.03)	4.04 (0.05)	3.24 (0.08)	45641.20	<.0001	UN < P < I < CR < WC
Subjective norm for birth control	3.82 (0.05)	1.7 (0.08)	4.19 (0.02)	1.84 (0.04)	3.08 (0.17)	31282.9	<.0001	P < CR < UN < I < WC
Perceived behavioral control for birth control use	3.53 (0.04)	3.3 (0.11)	4.74 (0.02)	4.67 (0.02)	1.79 (0.10)	218591	<.0001	UN < P < I < CR < WC

Note: The overall sample means are compared to the five profiles of sexual behaviors for adolescents at wave 1. Standard deviations within parentheses. Profiles are abbreviated as follows: I, impulsive adolescents, P, Precarious adolescents, WC, Well-controlled adolescents, CR, conservatively-reared adolescents, H, Hasty adolescents, and UN, unrestrained adolescents. Analysis of contrasts was conducted to compare all profiles with each other individually. Significant contrasts are displayed to compare means found to be statistically significantly different from other means.

Table 9.

Profiles by age for wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by age
14 (n)	1	0	4	3	2	10
14 (%)	0.00%	--	0.06%	0.06%	0.04%	0.16%
15 (n)	312	358	783	868	397	2718
15 (%)	4.38%	5.32%	10.63%	11.35%	5.39%	37.06%
16 (n)	380	340	849	785	665	3019
16 (%)	3.98%	4.08%	10.63%	8.93%	8.11%	35.74%
17 (n)	322	214	619	537	676	2368
17 (%)	3.52%	2.13%	7.14%	6.29%	7.95%	27.04%
Total by profile	1015 11.90%	912 11.53%	2255 28.46%	2193 26.64%	1740 21.49%	8115 100%

Note: The frequency and percentage by age is given for each profile and the sample at wave 1 including participants who had a non-missing response for profile membership and age. Percentages sum horizontally to the total percentage of the sample to be of the given age, and vertically by profile. Only the row and column identifying totals (by age and profile) sum to 100%.

Table 10.

Profiles by gender for wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by gender
Male (n)	732	399	1036	705	1130	4002
Male (%)	8.78%	5.21%	13.02%	9.59%	13.61%	50.21%
Female (n)	283	513	1219	1488	610	4113
Female (%)	3.10%	6.37%	15.44%	17.06%	7.88%	49.79%
Total by profile	1015 11.90%	912 11.53%	2255 28.46%	2193 26.64%	1740 21.49%	8115 100%

Note: The frequency and percentage of each gender is given for each profile and the sample for wave 1 including participants who had a non-missing response for profile membership and gender.

Table 11.

Profile membership distribution within gender for wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by gender
Male (%)	17.49%	10.38%	25.93%	19.10%	27.11%	100%
Female (%)	6.23%	12.79%	31.01%	34.26%	15.83%	100%

Note: The profile membership in percentage is given for within each gender for wave 1 and includes only participants who had a non-missing response for profile membership and gender.

Table 12.

Profiles by gender for wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Un-restrained	Total by gender
Male (n)	1217	344	1697	598	158	4014
Male (%)	15.33%	4.32%	20.98%	7.85%	1.81%	50.30%
Female (n)	497	385	1754	1394	94	4124
Female (%)	5.72%	4.31%	22.47%	16.01%	1.19%	49.70%
Total by profile	1714 21.05%	729 8.63%	3451 43.45%	1992 23.86%	252 3.00%	8138 100%

Note: The frequency and percentage of each gender is given for each profile and the sample for wave 2 including participants who had a non-missing response for profile membership and gender.

Table 13.

Profiles by gender for wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Un-restrained	Total by gender
Male (%)	30.48%	8.59%	41.71%	15.61%	3.60%	100%
Female (%)	11.51%	8.67%	45.21%	32.21%	2.39%	100%

Note: The profile membership in percentage is given for within each gender for wave 2 and includes only participants who had a non-missing response for profile membership and gender.

Table 14.

Profiles by race/ethnicity for wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by race
White (n)	447	431	1281	1083	850	4092
White (%)	7.23%	7.48%	20.54%	17.53%	13.15%	65.92%
Black (n)	208	130	422	380	419	1558
Black (%)	2.16%	1.38%	4.11%	3.40%	4.37%	15.14%
Asian (n)	79	109	123	203	47	561
Asian (%)	0.50%	0.60%	0.83%	1.23%	0.30%	3.47%
Hispanic (n)	96	99	134	165	117	611
Hispanic (%)	0.75%	0.85%	0.86%	1.60%	1.08%	5.14%
Mixed-race (n)	169	131	263	322	280	1165
Mixed-race (%)	1.21%	1.21%	2.20%	2.89%	2.55%	10.05%
Total by profile	998 11.84%	900 11.57%	2223 28.54%	2153 26.65%	1713 21.46%	7987 100%

Note: The race/ethic frequency and percentage is given for each profile and the sample for wave 1 including participants who had a non-missing response for profile membership and race. In order to belong to a specific race category (i.e., white) participants must have selected only that category as their race. Students were categorized as Hispanic if they indicated being of Hispanic origin and did not indicate any other specific race category. Students who indicated two or more races, or being of Hispanic origin and another race group were categorized as mixed-race.

Table 15.

Profile membership within race/ethnicity categories for wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by race
White (%)	10.97%	11.35%	31.16%	26.71%	19.95%	100%
Black (%)	14.27%	9.11%	27.15%	22.46%	28.86%	100%
Asian (%)	14.40%	17.29%	23.92%	35.45%	8.65%	100%
Hispanic (%)	14.59%	16.54%	16.73%	31.13%	21.01%	100%
Mixed-race (%)	12.04%	12.04%	21.89%	28.76%	25.37%	100%

Note: The profile membership in percentage is given for within each race/ethnicity category for wave 1 and includes only participants who had a non-missing response for profile membership and race/ethnicity. In order to belong to a specific race category (i.e., white) participants must have selected only that category as their race. Students were categorized as Hispanic if they indicated being of Hispanic origin and did not indicate any other specific race category. Students who indicated two or more races, or being of Hispanic origin and another race group were categorized as mixed-race.

Table 16.

Profiles by race/ethnicity for wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Un-restrained	Total by race/ethnicity
White (n)	792	315	1876	1011	98	4092
White (%)	12.73%	5.32%	30.28%	16.07%	1.54%	65.92%
Black (n)	310	79	757	356	56	1558
Black (%)	3.50%	0.79%	7.23%	3.18%	0.71%	15.41%
Asian (n)	137	124	121	149	30	561
Asian (%)	0.74%	0.81%	0.70%	1.01%	0.20%	3.47%
Hispanic (n)	167	79	188	155	22	611
Hispanic (%)	1.49%	0.79%	1.31%	1.38%	0.17%	5.14%
Mixed-race (n)	272	114	455	282	42	1165
Mixed-race (%)	2.55%	0.95%	4.01%	2.18%	0.36%	10.05%
Total by profile	1678 21.00%	711 8.66%	3397 43.53%	1953 23.82%	248 2.98%	7987 100%

Note: The race/ethic frequency and percentage is given for each profile and the sample for wave 2 including participants who had a non-missing response for profile membership and race. In order to belong to a specific race category (i.e., white) participants must have selected only that category as their race. Students were categorized as Hispanic if they indicated being of Hispanic origin and did not indicate any other specific race category. Students who indicated two or more races, or being of Hispanic origin and another race group were categorized as mixed-race.

Table 17.

Profile membership within race/ethnicity categories for wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Un-restrained	Total by race/ethnicity
White (%)	19.31%	8.07%	45.93%	24.38%	2.34%	100%
Black (%)	22.71%	5.13%	46.92%	20.64%	4.61%	100%
Asian (%)	21.32%	23.34%	20.17%	29.11%	5.76%	100%
Hispanic (%)	28.99%	15.37%	25.49%	26.85%	3.31%	100%
Mixed-race (%)	25.37%	9.45%	39.90%	21.69%	3.58%	100%

Note: The profile membership in percentage is given for within each race/ethnicity category for wave 2 and includes only participants who had a non-missing response for profile membership and race/ethnicity. In order to belong to a specific race category (i.e., white) participants must have selected only that category as their race. Students were categorized as Hispanic if they indicated being of Hispanic origin and did not indicate any other specific race category. Students who indicated two or more races, or being of Hispanic origin and another race group were categorized as mixed-race.

Table 18.

Sex-active status by profile at wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by status
Non-sexually active (n)	443	674	1334	1599	567	4617
Non-sexually active (%)	4.87%	8.57%	16.60%	19.28%	6.83%	56.15%
Sexually active (n)	570	228	913	568	1170	3449
Sexually active (%)	7.10%	2.89%	12.02%	7.03%	14.81%	43.85%
Total by profile	1013 11.97%	902 11.46%	2247 28.62%	2167 26.31%	1737 21.64%	8066 100%

Note: The frequency and percentage of participants who reported their sex-active status (whether or not they have had sexual intercourse) is given for each profile and the sample for wave 1 including participants who had a non-missing response for profile membership and the sex-active status item. Responses for both items are tabulated from wave 1 data.

Table 19.

Profile membership within sex-active status at wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Un-restrained	Total by status
Non-sexually active (%)	9.59%	14.59%	28.89%	34.63%	12.28%	100%
Sexually active (%)	16.52%	6.61%	26.47%	16.47%	33.92%	100%

Note: The profile membership in percentage is given for within each sex-active category (whether or not they have had sexual intercourse) for wave 1 and includes only participants who had a non-missing response for profile membership and sex-active status. Responses for both items are tabulated from wave 1 data.

Table 20.

Sex-active status by profile at wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Unrestrained	Total by status
Non-sexually active (n)	677	497	1229	1324	122	3849
Non-sexually active (%)	8.17%	5.96%	14.69%	16.30%	1.33%	46.45%
Sexually active (n)	1026	227	2207	657	130	4247
Sexually active (%)	12.84%	2.64%	28.78%	7.60%	1.68%	53.55%
Total by profile	1703	724	3436	1981	252	8096
	21.01%	8.60%	43.47%	23.90%	3.02%	100%

Note: The frequency and percentage of participants who reported their sex-active status (whether or not they have had sexual intercourse) is given for each profile and the sample for wave 2 including participants who had a non-missing response for profile membership and the sex-active status item. Responses for both items are tabulated from wave 2 data.

Table 21.

Profile membership within sex-active status at wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Unrestrained	Total by status
Non-sexually active (%)	17.59%	12.83%	31.63%	35.09%	2.86%	100%
Sexually active (%)	23.98%%	4.93%	53.74%	14.19%	3.14%	100%

Note: The profile membership in percentage is given for within each sex-active category (whether or not they have had sexual intercourse) for wave 2 and includes only participants who had a non-missing response for profile membership and sex-active status. Responses for both items are tabulated from wave 2 data.

Table 22.

Relationship status by profiles: Did you have a romantic relationship in the last 18 months at wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by status
No (n)	392	379	944	922	677	3314
No (%)	4.44%	4.56%	12.08%	11.14%	8.75%	40.97%
Yes (n)	615	528	1302	1262	1055	4762
Yes (%)	7.37%	6.85%	16.32%	15.38%	12.58%	58.50%
Total by profile	1015 11.88%	912 11.53%	2255 28.46%	2193 26.64%	1740 21.49%	8115 100%

Note: The frequency and percentage of participants who reported their relationship status (whether or not they held a romantic relationship in the last 18 months) is given for each profile and the sample for wave 1. Totals by profile include missing response. Responses for both items are tabulated from wave 1 data.

Table 23.

Profile membership within relationship status at wave 1

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Hasty	Total by status
No (%)	10.84%	11.13%	29.48%	27.19%	21.36%	100%
Yes (%)	12.60%	11.71%	27.90%	26.29%	21.50%	100%

Note: The profile membership in percentage is given for within each relationship-status category (whether or not they held a romantic relationship in the last 18 months) for wave 1 and includes only participants who had a non-missing response for profile membership and relationship-status. Responses for both items are tabulated from wave 1 data.

Table 24.

Relationship status by profiles: Did you have a romantic relationship in the last 18 months at wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Unrestrained	Total by status
No (n)	614	283	1293	728	113	3031
No (%)	7.50%	3.49%	16.57%	8.37%	1.29%	37.22%
Yes (n)	1094	443	2142	1252	135	5066
Yes (%)	13.52%	5.15%	26.86%	15.42%	1.66%	62.61%
Total by profile	1711 21.05%	727 8.65%	3445 42.51%	1983 23.83%	249 2.96%	8115 100%

Note: The frequency and percentage of participants who reported their relationship status (whether or not they held a romantic relationship in the last 18 months) is given for each profile and the sample for wave 2. Totals by profile include missing response. Responses for both items are tabulated from wave 2 data.

Table 25.

Profile membership within relationship status at wave 2

	Impulsive	Precarious	Well-controlled	Conservatively-reared	Unrestrained	Total by status
No (%)	20.15%	9.38%	44.52%	22.49%	3.47%	100%
Yes (%)	21.59%	8.23%	42.90%	24.63%	2.65%	100%

Note: The profile membership in percentage is given for within each relationship-status category (whether or not they held a romantic relationship in the last 18 months) for wave 2 and includes only participants who had a non-missing response for profile membership and relationship-status. Responses for both items are tabulated from wave 2 data.

Table 26.

Wave 1 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

	Engagement in Sexual Intercourse		Engagement in Hooking-up		Hooking-Up Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Impulsive (reference group)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Precarious	0.23* [0.18 – 0.30]	0.29* [0.20 – 0.41]	0.36* [0.24 – 0.56]	0.42* [0.23 – 0.76]	1.38 [0.85 – 2.24]	0.84 [0.43 – 1.63]	0.58 [0.28 – 1.23]	0.93 [0.61 – 1.40]	2.15* [1.16 – 3.99]	0.70 [0.26 – 1.91]	0.62 [0.24 – 1.61]	0.70 [0.39 – 1.26]
Well-controlled	0.50* [0.40 – 0.61]	0.54* [0.43 – 0.68]	0.54* [0.41 – 0.70]	0.54* [0.38 – 0.78]	0.44* [0.31 – 0.61]	0.86 [0.56 – 1.32]	0.96 [0.67 – 1.37]	1.95* [1.51 – 2.53]	0.45* [0.30 – 0.66]	0.78 [0.46 – 1.32]	0.83 [0.52 – 1.31]	2.05* [1.53 – 2.75]
Conservatively-reared	0.25* [0.20 – 0.31]	0.28* [0.22 – 0.36]	0.50* [0.36 – 0.69]	0.52* [0.33 – 0.80]	0.51* [0.36 – 0.71]	0.90 [0.61 – 1.34]	0.91 [0.51 – 1.62]	1.73* [1.23 – 2.44]	0.51* [0.31 – 0.85]	0.80 [0.45 – 1.39]	1.01 [0.47 – 2.17]	1.72* [1.13 – 2.63]
Hasty	1.49* [1.18 – 1.87]	1.46* [1.08 – 1.97]	0.73 [0.53 – 1.02]	0.62* [0.41 – 0.95]	0.38* [0.27 – 0.53]	0.79 [0.53 – 1.16]	0.87 [0.62 – 1.22]	2.36* [1.78 – 3.14]	0.44* [0.29 – 0.67]	0.75 [0.45 – 1.26]	0.75 [0.49 – 1.13]	2.29* [1.64 – 3.19]
Age		1.50* [1.37 – 1.65]		1.15 [1.00 – 1.31]					1.06 [0.90 – 1.24]	0.97 [0.78 – 1.20]	1.20 [0.99 – 1.47]	0.89 [0.77 – 1.03]
Gender (female)		1.36* [1.17 – 1.58]		0.96 [0.75 – 1.22]					1.05 [0.75 – 1.46]	2.04 [1.43 – 2.93]	0.84 [0.56 – 1.27]	0.80 [0.60 – 1.07]
White (reference group)		1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Black		2.21* [1.69 – 2.89]		1.11 [0.83 – 1.49]					0.73 [0.53 – 1.00]	0.92 [0.62 – 1.36]	1.57* [1.01 – 2.42]	0.95 [0.67 – 1.35]

Table 26. Continued

Wave 1 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

	Engagement in Sexual Intercourse		Engagement in Hooking-up		Hooking-Up Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Asian		0.54 [0.24 – 1.21]		0.36 [0.10 – 1.29]					1.43 [0.77 – 2.65]	2.67* [1.18 – 6.03]	0.48 [0.17 – 1.40]	0.53 [0.18 – 1.52]
Hispanic		0.83 [0.59 – 1.18]		1.18 [0.71 – 1.98]					0.99 [0.53 – 1.89]	1.48 [0.75– 2.94]	0.89 [0.45 – 1.77]	0.79 [0.42 – 1.50]
Mixed-Race (multi-racial)		1.07 [0.78 – 1.45]		1.12 [0.71 – 1.75]					0.99 [0.67 – 1.48]	1.45 [0.89 – 2.36]	0.91 [0.56 – 1.48]	0.89 [0.63 – 1.27]
Parent education		0.82* [0.75 – 0.90]		0.88 [0.75 – 1.03]					0.81* [0.69 – 0.97]	1.07 [0.87 – 1.33]	1.07 [0.87 – 1.30]	1.06 [0.91 – 1.22]
Parent occupational status		1.02 [0.94 – 1.11]		1.14* [1.01 – 1.30]					1.02 [0.87 – 1.20]	1.03 [0.82 – 1.30]	1.12 [0.93 – 1.35]	0.93 [0.80 – 1.09]
Income		1.01 [0.89 – 1.16]		0.91 [0.78 – 1.06]					0.91 [0.73 – 1.12]	0.72* [0.55 – 0.94]	0.90 [0.67 – 1.21]	1.31* [1.11 – 1.54]
Intact Family Structure		0.60* [0.48 – 0.75]		0.81 [0.64 – 1.04]					1.07 [0.81- 1.43]	0.92 [0.65 – 1.30]	1.08 [0.78 – 1.51]	0.98 [0.77 – 1.25]

Table 26. Continued

Wave 1 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

Note: The wave 1 cross-sectional models examined relationships between profiles at wave 1 and outcomes at wave 1. Model 1 included only profiles and the outcome of interest. Model 2 included profiles, all covariates, and the outcome of interest. In all models, impulsive adolescents were the reference group. In all "model 2" white was used as the reference group for race/ethnicity, males were used as the reference group for gender, and non-intact was used as the reference group for family structure. For consistent contraceptive use, categories were created according to whether adolescents indicated having used contraception at first time of sex and most recent time of sex. The category of "none" indicated not having used contraception at either time, "first" indicated having used contraception at first time of sex but not most recent time, "most" indicated having used contraception at most recent time of sex but not first time of sex, and "both" indicated having used contraception at both times of sex. Significance is noted by * $p < 0.05$.

Table 27.

Longitudinal analysis of wave 1 profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use at wave 2

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Impulsive (reference group)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Precarious	0.28* [0.21 – 0.37]	0.37* [0.23 – 0.62]	0.78 [0.49– 1.26]	0.73 [0.41 – 1.29]	1.68 [0.53 – 5.30]	0.12 [0.01 – 1.02]	3.20 [0.87 – 11.74]	0.77 [0.37 – 1.61]	1.30 [0.39 – 4.31]	0.01 [0.00 – 0.13]	5.82 [1.11 – 30.58]	0.46 [0.16 – 1.31]
Well Controlled	0.66* [0.54 – 0.81]	0.91 [0.62 – 1.33]	0.65* [0.49 – 0.88]	0.60* [0.40 – 0.88]	0.80 [0.28 – 2.32]	0.25* [0.07 – 0.93]	1.25 [0.38 – 4.16]	1.40 [0.79 – 2.49]	0.76 [0.26 – 2.29]	0.70 [0.13 – 3.82]	2.13 [0.43 – 10.55]	1.24 [0.67 – 2.32]
Conservatively-reared	0.36* [0.29 – 0.45]	0.60* [0.43 – 0.85]	0.73 [0.52 – 1.03]	0.75 [0.47 – 1.17]	1.38 [0.39 - 4.83]	0.56 [0.18 – 1.78]	2.09 [0.60– 7.29]	0.87 [0.44 – 1.69]	0.86 [0.28 – 2.65]	0.77 [0.16 – 3.76]	4.61 [1.02 – 20.77]	0.60 [0.26 – 1.36]
Hasty	1.75* [1.41 – 2.18]	1.15 [0.69 – 1.92]	1.06 [0.80 – 1.40]	0.89 [0.63 – 1.24]	0.75 [0.33 – 1.69]	0.59 [0.22 – 1.55]	0.72 [0.22 – 2.34]	1.10 [0.59 – 2.02]	0.53 [0.23 – 1.23]	0.52 [0.14 – 1.90]	2.42 [0.57 – 10.19]	1.04 [0.53 – 2.05]
Age		1.21* [1.07 – 1.38]		0.92 [0.79 – 1.08]					0.83 [0.53 – 1.28]	0.41* [0.22 – 0.78]	0.61 [0.37 – 1.03]	0.70* [0.51– 0.95]
Gender (female)		1.43* [1.18 – 1.74]		0.79* [0.64 – 0.99]					0.85 [0.41 – 1.76]	0.90 [0.31 – 2.60]	0.91 [0.32 – 2.56]	1.22 [0.80 – 1.88]
White (reference group)		1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Table 27. Continued

Longitudinal analysis of wave 1 profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use at wave 2

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Black	1.09 [0.78 – 1.52]		1.35 [0.97 – 1.88]						0.69 [0.21 – 2.31]	1.03 [0.36 – 2.95]	1.16 [0.38 – 3.61]	1.13 [0.68 – 1.87]
Asian	0.60 [0.35 – 1.01]		0.32* [0.11 – 0.87]						<0.001 [<0.001 – <0.001]	5.56 [0.44 – 71.04]	2.97 [0.45 – 19.57]	0.46 [0.06 – 3.55]
Hispanic	0.72 [0.46 – 1.12]		0.67 [0.38 – 1.17]						1.73 [0.34 – 8.92]	1.48 [0.19 – 11.88]	1.08 [0.17 – 6.84]	0.55 [0.21 – 1.46]
Mixed-Race (multi-racial)	1.19 [0.88 – 1.62]		1.06 [0.69 – 1.62]						0.97 [0.18 – 5.12]	0.73 [0.15 – 3.55]	2.61 [0.79 – 8.61]	1.83* [1.02 – 3.30]
Parent education	0.81* [0.72 – 0.90]		0.98 [0.86 – 1.13]						1.46 [1.00 – 2.12]	0.70 [0.38 – 1.30]	0.80 [0.53 – 1.20]	1.14 [0.90 – 1.44]
Parent occupational status	1.06 [0.93 – 1.22]		1.03 [0.90 – 1.17]						0.79 [0.48 – 1.30]	1.13 [0.55 – 2.32]	1.42 [0.89 – 2.28]	0.96 [0.76 – 1.22]
Income	0.98 [0.83 – 1.16]		0.98 [0.82 – 1.17]						0.77 [0.40 – 1.49]	0.78 [0.38 – 1.59]	0.83 [0.51 – 1.36]	1.14 [0.78 – 1.67]

Table 27. Continued

Longitudinal analysis of wave 1 profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use at wave 2

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Intact Family Structure	0.65* [0.53 – 0.80]		0.83 [0.64 – 1.08]						1.07 [0.53 – 2.16]	1.15 [0.38 – 3.49]	2.33 [0.96 – 5.64]	1.18 [0.72 – 1.95]
Sexually Active	.03* [.02 -.03]		--						--	--	--	--

Note: The longitudinal models examined relationships between profiles at wave 1 and outcomes at wave 2. Model 1 included only profiles and the outcome of interest. Model 2 included profiles, all covariates, and the outcome of interest. Sexually-active status was not included as a covariates for hooking-up or contraceptive use as these analyses were performed using a subsample of adolescents who reported being sexually active. In all models, impulsive adolescents were the reference group. In all "model 2" white was used as the reference group for race/ethnicity, males were used as the reference group for gender, and non-intact was used as the reference group for family structure. For consistent contraceptive use, categories were created according to whether adolescents indicated having used contraception at first time of sex and most recent time of sex. The category of "none" indicated not having used contraception at either time, "first" indicated having used contraception at first time of sex but not most recent time, "most" indicated having used contraception at most recent time of sex but not first time of sex, and "both" indicated having used contraception at both times of sex. Significance is noted by * $p < 0.05$.

Table 28.

Wave 2 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Impulsive (reference group)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Precarious	0.28* [0.22 – 0.37]	0.55* [0.37 – 0.82]	0.94 [0.60 – 1.46]	1.27 [0.75 – 2.15]	2.21 [0.81 – 6.00]	0.68 [0.20 – 2.36]	4.51* [1.22 – 16.70]	0.56 [0.21 – 1.53]	1.42 [0.43 – 4.71]	1.84 [0.38 – 8.91]	1.69 [0.27 – 10.43]	0.18* [0.06 – 0.57]
Well-controlled	1.25* [1.04 – 1.50]	1.61* [1.13– 2.31]	0.67* [0.54 – 0.83]	0.70* [0.54 – 0.90]	0.49 [0.21 – 1.13]	0.43 [0.18 – 1.01]	0.82 [0.29 – 2.33]	1.41 [0.85 – 2.35]	0.42 [0.15 – 1.19]	1.31 [0.34 – 5.14]	0.65 [0.22 – 1.88]	1.44 [0.82 – 2.54]
Conservatively-reared	0.30* [0.25 – 0.36]	0.58* [0.41 – 0.83]	0.52* [0.38 – 0.71]	0.61* [0.41 – 0.92]	0.42 [0.12 – 1.51]	0.77 [0.24 – 2.42]	1.28 [0.35 – 4.66]	1.20 [0.66 – 2.17]	0.47 [0.12 – 1.85]	1.49 [0.12 – 17.89]	0.59 [0.11 – 3.26]	0.75 [0.34 – 1.68]
Unrestrained	0.80 [0.56– 1.16]	2.04* [1.03 – 4.03]	1.17 [0.65 – 2.13]	1.58 [0.78 – 3.21]	2.54 [0.51 – 12.63]	1.18 [0.25 – 5.50]	3.74 [0.87 – 15.99]	0.69 [0.17 – 2.76]	1.07 [0.30 – 3.78]	2.74 [0.26 – 29.00]	2.46 [0.42 – 14.43]	0.38 [0.09 – 1.66]
Age		1.20* [1.06 – 1.37]		0.94 [0.80 – 1.09]					0.81 [0.53 – 1.22]	0.43* [0.21 – 0.85]	0.60 [0.36 – 1.02]	0.69* [0.51 – 0.93]
Gender (female)		1.45* [1.20 – 1.75]		0.81 [0.65 – 1.00]					0.99 [0.44 – 2.26]	0.83 [0.25 – 2.80]	1.17 [0.49 – 2.79]	1.19 [0.76 – 1.86]
White (reference group)		1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Black		1.09 [0.78 – 1.52]		1.36 [0.98 – 1.88]					0.71 [0.22 – 2.31]	1.06 [0.36 – 3.11]	1.18 [0.40 – 3.50]	1.14 [0.67 – 1.95]

Table 28. Continued

Wave 2 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both
Asian		0.60* [0.35 – 1.01]		0.26* [0.09 – 0.73]					<0.001 [<0.001 – <0.001]	4.90 [0.47 – 51.39]	2.26 [0.42 – 12.13]	0.58 [0.07 – 4.81]
Hispanic		0.81 [0.51 – 1.28]		0.65 [0.38 – 1.12]					1.57 [0.34 – 7.20]	1.36 [0.19 – 10.03]	1.22 [0.18– 8.45]	0.59 [0.22 – 1.53]
Mixed-Race (multi-racial)		1.21 [0.91 – 1.63]		1.06 [0.67 – 1.66]					0.87 [0.17 – 4.40]	0.73 [0.15 – 3.47]	2.55 [0.76 – 8.55]	1.96* [1.07 – 3.58]
Parent education		0.83* [0.74 – 0.93]		0.96 [0.84 – 1.10]					1.41 [0.94 – 2.10]	0.69 [0.35 – 1.35]	0.80 [0.52 – 1.25]	1.20 [0.93 – 1.54]
Parent occupational status		1.08 [0.95 – 1.23]		1.03 [0.90 – 1.17]					0.80 [0.48 – 1.33]	1.14 [0.59 – 2.21]	1.37 [0.85 – 2.20]	0.95 [0.74 – 1.20]
Income		0.96 [0.81 – 1.14]		1.01 [0.84 – 1.21]					0.80 [0.41 – 1.56]	0.76 [0.41 – 1.41]	0.91 [0.56 – 1.46]	1.11 [0.76 – 1.63]
Intact Family Structure		0.69* [0.56 – 0.86]		0.79 [0.61 – 1.03]					1.08 [0.56 – 2.06]	1.17 [0.35 – 3.90]	2.48 [0.95 – 6.47]	1.23 [0.73 – 2.06]
Sexually Active		0.03* [0.02 – 0.03]		--					--	--	--	--

Table 28. Continued

Wave 2 Cross-sectional analysis of profiles' association with engagement in sexual intercourse, hooking-up, and contraceptive use

	Engagement in Sexual Intercourse		Engagement in Hooking-Up		Consistent Contraceptive use							
	Model 1	Model 2	Model 1	Model 2	Model 1				Model 2			
Effect					None	First	Most	Both	None	First	Most	Both

Note: The wave 2 cross-sectional models examined relationships between profiles at wave 2 and outcomes at wave 2. Model 1 included only profiles and the outcome of interest. Model 2 included profiles, all covariates, and the outcome of interest. Sexually-active status was not included as a covariates for hooking-up or contraceptive use as these analyses were performed using a subsample of adolescents who reported being sexually active. In all models, impulsive adolescents were the reference group. In all "model 2" white was used as the reference group for race/ethnicity, males were used as the reference group for gender, and non-intact was used as the reference group for family structure. For consistent contraceptive use, categories were created according to whether adolescents indicated having used contraception at first time of sex and most recent time of sex. The category of "none" indicated not having used contraception at either time, "first" indicated having used contraception at first time of sex but not most recent time, "most" indicated having used contraception at most recent time of sex but not first time of sex, and "both" indicated having used contraception at both times of sex. Significance is noted by * $p < 0.05$.

Appendix B: Measures

Items of Interest from Add Health Data Set waves 1 and 2
Note: S.I.: Sexual Intercourse, B.C.: Birth Control

Full Item	**Place in Model**
Age (W1 calculated variable)	INCLUSION CRITERIA
Have you ever been married?	INCLUSION CRITERIA
What is your current marital status?	INCLUSION CRITERIA
If you had sexual intercourse, your friends would respect you more	ATTITUDES S.I.
If R is male: If you had sexual intercourse, it would make you more attractive to women. If R is female: If you had sexual intercourse, it would make you more attractive to men	ATTITUDES S.I.
If you had sexual intercourse, you would feel less lonely	ATTITUDES S.I.
How would she feel about your having sex at this time in your life?	SUBJECTIVE NORM: S.I.
How would she feel about your having sexual intercourse with someone who was special to you and whom you knew well-like a steady {GIRLFRIEND/BOYFRIEND}?	SUBJECTIVE NORM: S.I.
How would he feel about your having sex at this time in your life?	SUBJECTIVE NORM: S.I.
How would he feel about your having sexual intercourse with someone who was special to you and whom you knew well-like a steady {GIRLFRIEND/BOYFRIEND}?	SUBJECTIVE NORM: S.I.
In general, birth control is too much of a hassle to use	ATTITUDES: B.C.
In general, birth control is too expensive to buy	ATTITUDES: B.C.
It takes too much planning ahead of time to have birth control on hand when you're going to have sex	ATTITUDES: B.C.
It {IS/WOULD BE} too hard to get a {GIRL/BOY} to use birth control with you	ATTITUDES: B.C.
For you, using birth control {INTERFERES/WOULD INTERFERE} with sexual enjoyment	ATTITUDES: B.C.
Using birth control is morally wrong	ATTITUDES: B.C.
If you used birth control, your friends might think that you were looking for sex	ATTITUDES: B.C.
How would she feel about your using birth control at this time in your life?	SUBJECTIVE NORM: B.C.
How would he feel about your using birth control at this time in your life?	SUBJECTIVE NORM: B.C.
If you wanted to use birth control, how sure are you that you could stop yourself and use birth control once you were highly aroused or turned on?	BEHAVIORAL CONTROL: B.C.
How sure are you that you could plan ahead to have some form of birth control available?	BEHAVIORAL CONTROL: B.C.

How sure are you that you could resist sexual intercourse if your partner did not want to use some form of birth control?	BEHAVIORAL CONTROL: B.C.
Have you ever had sexual intercourse?	OUTCOME VARIABLE: SEXUAL INTERCOURSE
Not counting the people you have described as romantic relationships, {WAVE 2: Since [MOLI]}, have you ever had a sexual relationship with anyone?	OUTCOME VARIABLE: HOOKING UP
Did you or your partner use any method of birth control the first time you had sexual intercourse?	OUTCOME VARIABLE: CONTRACEPTIVE USE
Did you or your partner use any method of birth control when you had sexual intercourse most recently?	OUTCOME VARIABLE: CONTRACEPTIVE USE

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